

# AIR FORCE

THE OFFICIAL JOURNAL OF THE AIR FORCE ASSOCIATION, JULY, 1949

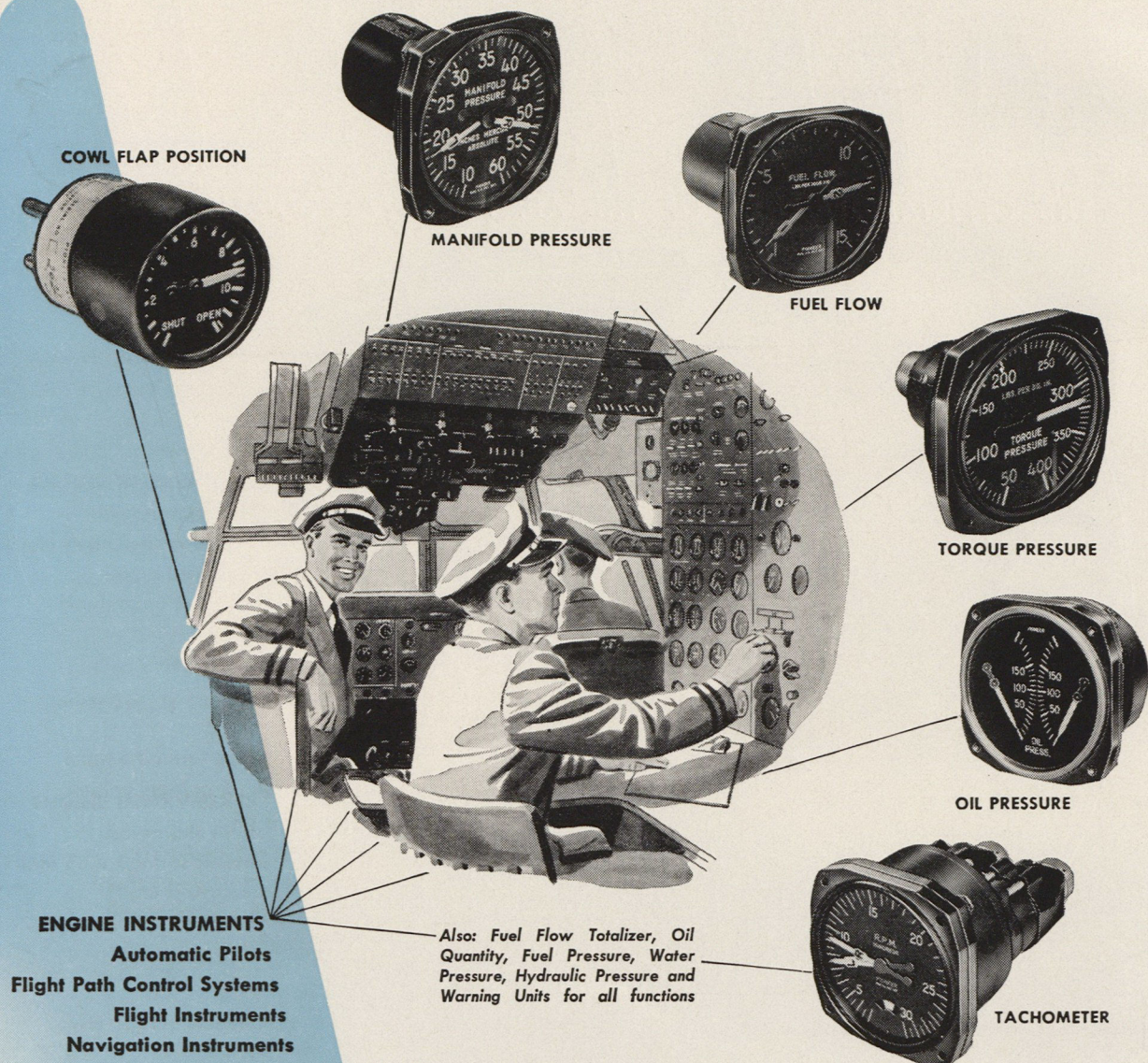


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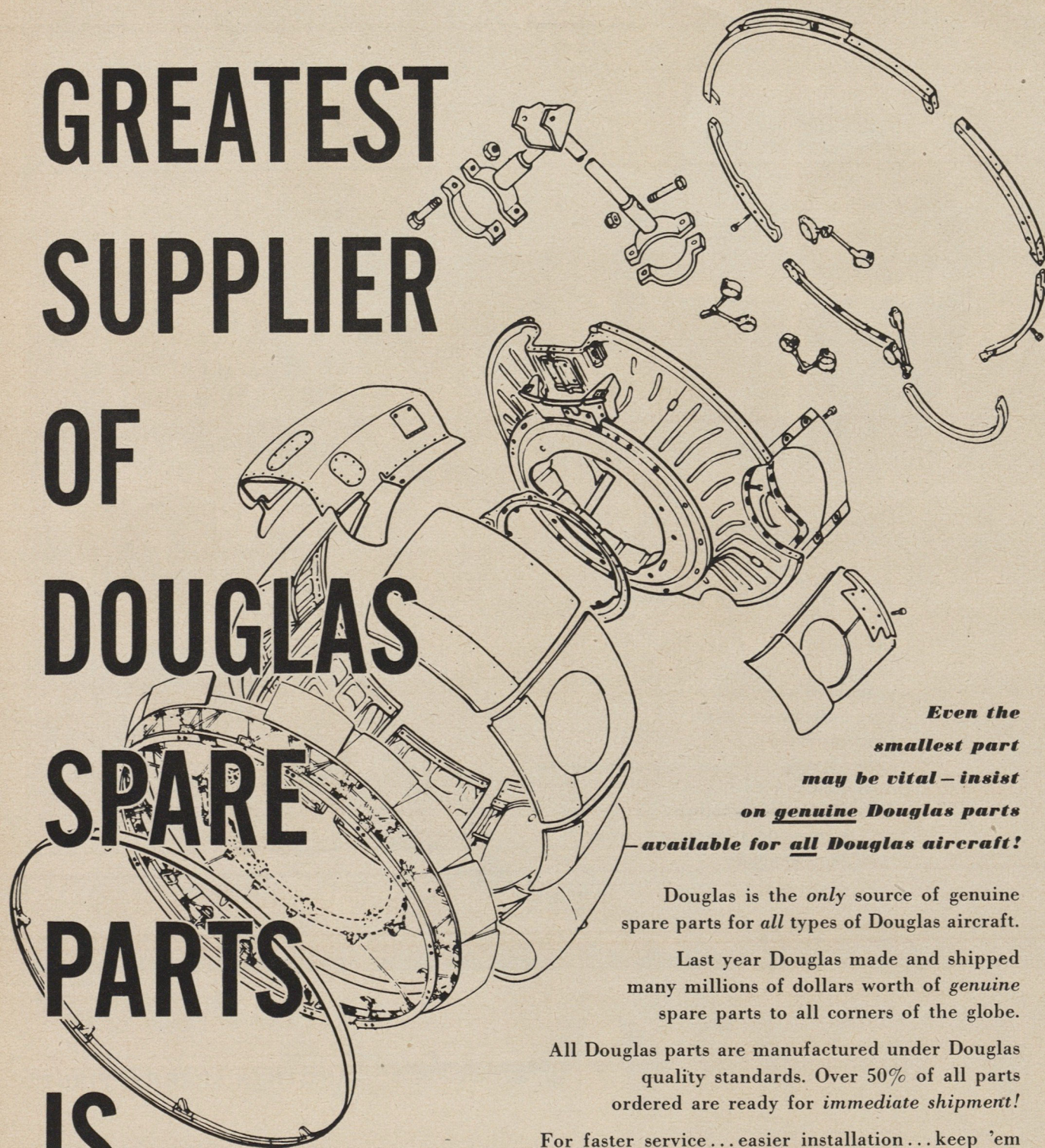


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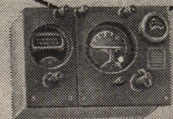
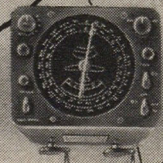
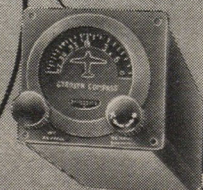
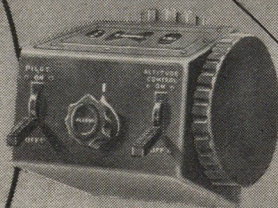
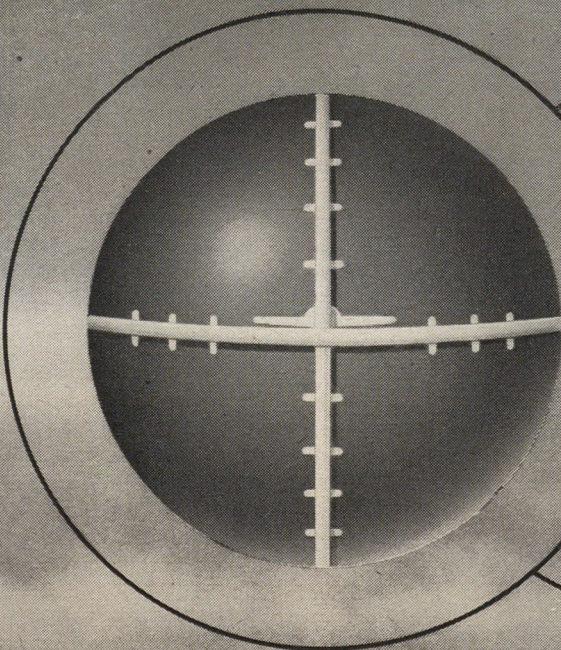
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## FEATURES

- ARE FIGHTERS OBSOLETE?..... 17  
Has the intercontinental bomber made our "little friends" a thing of the past?
- GENERAL OF THE AIR FORCE H. H. ARNOLD..... 22  
The "Old Man" gets a new appointment
- NO PLACE TO HIDE—PICTURE VERSION..... 30  
Startling pictures taken from the air 24 years ago and today

## DEPARTMENTS

- A NEW DEPARTMENT: AIRPOWER IN THE NEWS..... 14
- AIR FORCE DIARY: The World is their Oyster.....Herbert H. Ringold 26  
ATC's special mission outfit was on call for any emergency, anywhere, any time
- TECHNIQUE ..... 37
- TECH TALK ..... 38
- SHOOTING THE BREEZE 4, AIR MAIL 8, RENDEZVOUS 11, IN RESERVE 28,

AFA NEWS 32, RECON SHOTS 40

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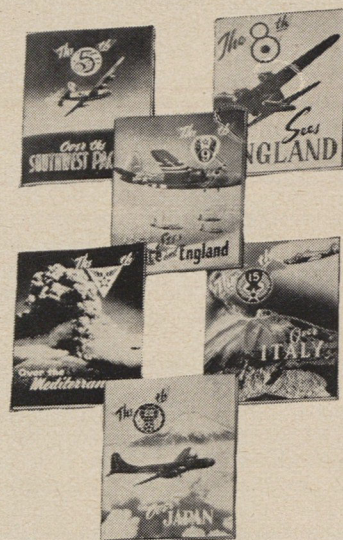
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# SHOOTING

## An Open Letter to Members of the Navy League of the United States:

*Dear Friends of the Navy:*

We take the liberty of addressing you as your president addresses you in his current series of letters to Navy League members. We do so because it is a natural salutation and a good one, and we use it with respect. The Navy merits many friends. At the same time, we have become concerned over the type of friendship you are being committed to by your leaders at present, and we are presumptuous enough to write you about it. In doing so we are well aware that this is none of our business, except that national security is everybody's business, and we are concerned with national security and your place in it.

Our little message, if you can call it that, is prompted by the letter of May 18 you received from your president, Mr. Frank A. Hecht of Chicago, and by the little booklet "On Target" which outlines "The Navy League's Action Line for '49."

With reference to the latter, we are duly impressed by the scope of this \$500,000 campaign, which was launched, we recall, back in February in collaboration with the Navy. Now it is in motion as "an organized aggressive, nationwide public information and public relations program designed to establish the Navy and naval aviation as an essential element of national defense." Your president refers to this program as a "crusade", and it's a nice choice of words. As he puts it to you in his letter: "You must join our crusade." He didn't bother with "We hope you'll join." He said you *must*. Now that's rather strong language for a man who so deplores dictatorial powers. Remember this is the man who objects to the new unification bill because of the "dictatorial" powers it gives the Secretary of Defense. This is the man who has called upon you to lobby against the bill to "insure against the evil fruits of a police state." But we do not mean to linger long over wordage. Maybe he used the word more as a plea than an order.

We also note the blatant refusal on the part of your president to accept what has become national policy on Unification matters, and his insistence on judging Unification from the standpoint of Navy rather than National Security. A good example of what we mean is his attitude regarding the observance of Navy Day. You are well aware, we're sure, that the Secretary of Defense, with President Truman's approval, determined that it would be in the best interests of national defense to



abandon the three annual celebrations—Navy Day, Army Day and Air Force Day—and that this decision, as a constructive step toward closer harmony between the services, has been supported enthusiastically by the nation's press and by the Congress. And you surely know that those responsible for the civilian sponsorship of both Army Day and Air Force Day (in the latter case, the Air Force Association) have agreed to their abandonment in the best interest of the defense establishment. Perhaps you were prepared to forego Navy Day on the same basis. But now you are being represented as one who stubbornly refuses to give up Navy Day, who insists that it be observed regardless of Unification, national interest, or what have you. You are linked with this autocratic pronouncement of your president: "It is for the Navy League to decide whether there shall always be a Navy Day."

### What Crisis? Where?

Digging deeper into the literature you are receiving from Navy League headquarters, we have become even more startled by your president's impassioned plea for you to "Stir up interest in your locality; talk to your local editor and others who make public opinion in your community; write cards to those on your Christmas list; tell your friends in your own language of the threat to our national well-being. Talk to your congressmen and senators. Go to Washington; telephone or write your representatives. Ask for copies of this material to send to your friends. Help arrange for speakers before various groups; tell the story..."

We have pondered the meaning of all this: the near fanatical appeal to "crusade," the flaunting of authority, the take-the-law-in-our-own-hands philosophy, the frantic call to arms.

Obviously this is the red alert. You are being called upon to meet a crisis. But what crisis? And where? Have sinister forces contrived to do away with the United States Navy? Your president seems to think so. For he has told you, "By joining to defeat the efforts now being made to emasculate our Navy and jeopardize our country's safety YOU (his emphasis) can help."

Now appropriations are the last word in any "emasculatation" process. So one might conclude from the above that Naval appropriations must be due for a drastic cut in fiscal 1950. We have

# THE BREEZE

checked the huge peacetime defense bill already voted by the House of Representatives, a bill which provided approximately \$5,000,000,000 for the Navy in 1950. We have found our answer in the words of Representative Mahon of Texas, chairman of the Appropriations subcommittee on the armed services, words which went unchallenged throughout the heated debate in the House. "The appropriation in this bill for the entire Navy," he said, "is greater this year (fiscal 1950) than it was last year; the appropriation for naval aviation is greater than it was last year." And there is every indication, at this writing, that the Senate will uphold these increases in Navy funds. As Mr. Mahon has explained: "Scrap the Navy? What strange words in view of the cold facts of the situation."

No, the cold facts will not support the "emasculatation" crisis that is being strumped up to justify an "action line in '49." For no "emasculatation" is taking place.

The Navy problem that exists is part of an evolution in military science that has been going on for some time and will continue for some time to come. It is the inevitable result of the development of the airplane as the major military weapon, and of an airpower concept as our primary military concept for national defense. This has been accepted by the services, by the press, by the people as a whole. But it is hard to outgrow the old and accept the new. It is especially hard for those who see many of the traditions they have been close to fall by the board, and for those who see many of the military contracts they have been used to threatened by a new order.

So it's not surprising that your "action line for '49" embraces a negative philosophy, one that is best expressed, we find, in your president's statement to you of May 18: "The United States Navy must not be relegated to any second or third place position in our defense team."

Our country already has, of course, the most powerful Navy in the world, and this is a point of great national pride. Moreover, Congress is seeing to it that we maintain the world's best in navies. But your president does not refer to our Navy in relation to a potential enemy. He is concerned solely with its position in "our defense team."

### Security or an empire?

This preoccupation with the Navy in relation to her sister services, while it embraces pride and tradition, seems peculiarly related to Navy appropriations and Navy contracts, especially in the years to come. Obviously your lead-



ers are looking ahead, and it would appear that they are concerned about the Navy of the future not only as a fighting force but as an industrial empire. Note the concluding thought they have given you, with due emphasis, in your "action line for '49" booklet, that message on the inside back cover: "Navy business is your business. Seventy percent of Navy purchases are made from small business. The economy of every state in the 48 is affected when cuts are made in naval appropriations. Yes, Navy business IS (emphasis theirs) your business, not only because of the security an adequate Navy will provide for this nation, but because it affects the very community in which you live."

Well, that's laying it on the line. That's handing you patriotism and national security on a cash and carry basis. That's telling you, in no uncertain terms, to fight for a big Navy and keep the tax dollars rolling into your home state and home community and, if you are a small businessman with Navy contracts, as many of you are, to keep them rolling into your own little back yard.

It occurs to us that while a Navy may affect the very community in which you live, so might an enemy's atomic bomb, in quite different measure.

Business is business, as the saying goes, but we can't believe you'd permit a dollar-hungry call to arms influence you in evaluating what's best for the defense of the nation. Nor can we imagine that you don't see the joker in this "small business" approach. For Navy business is also BIG business—on Wall Street and in the steel industry. And your national officers are BIG business, with amazingly few exceptions. The Navy, as we have traditionally known it, is a big business which is threatened, not by the Air Force or by any other service as such, but by the steady, relentless march of science. Navy men know it. Down deep, Navy League leaders know it. We suggest to you in all sincerity that this "action line for '49" is in reality a life-line for '50 and perhaps '59. It is a frantic effort to escape the inescapable flow of new weapons and new techniques, with their many economic ramifications. But unless we accept and develop these new weapons and techniques, and shake the old, an aggressor nation may beat us to the punch, may jeopardize far more than our bankrolls.

Now you are on the "action line," organized and geared to mould public opinion. You have a choice to make, if you so desire. You can accept at face value the propaganda handouts you are being supplied with and, as your instruction booklet puts it, "broadcast" them around the countryside. Or you can review their meaning in terms of overall defense needs, search out the other side of each issue, and make your own evaluations. Then if you still want to "broadcast" the originals, at least you will be doing so with no strings attached.

Sincerely,  
James H. Straubel  
Editor

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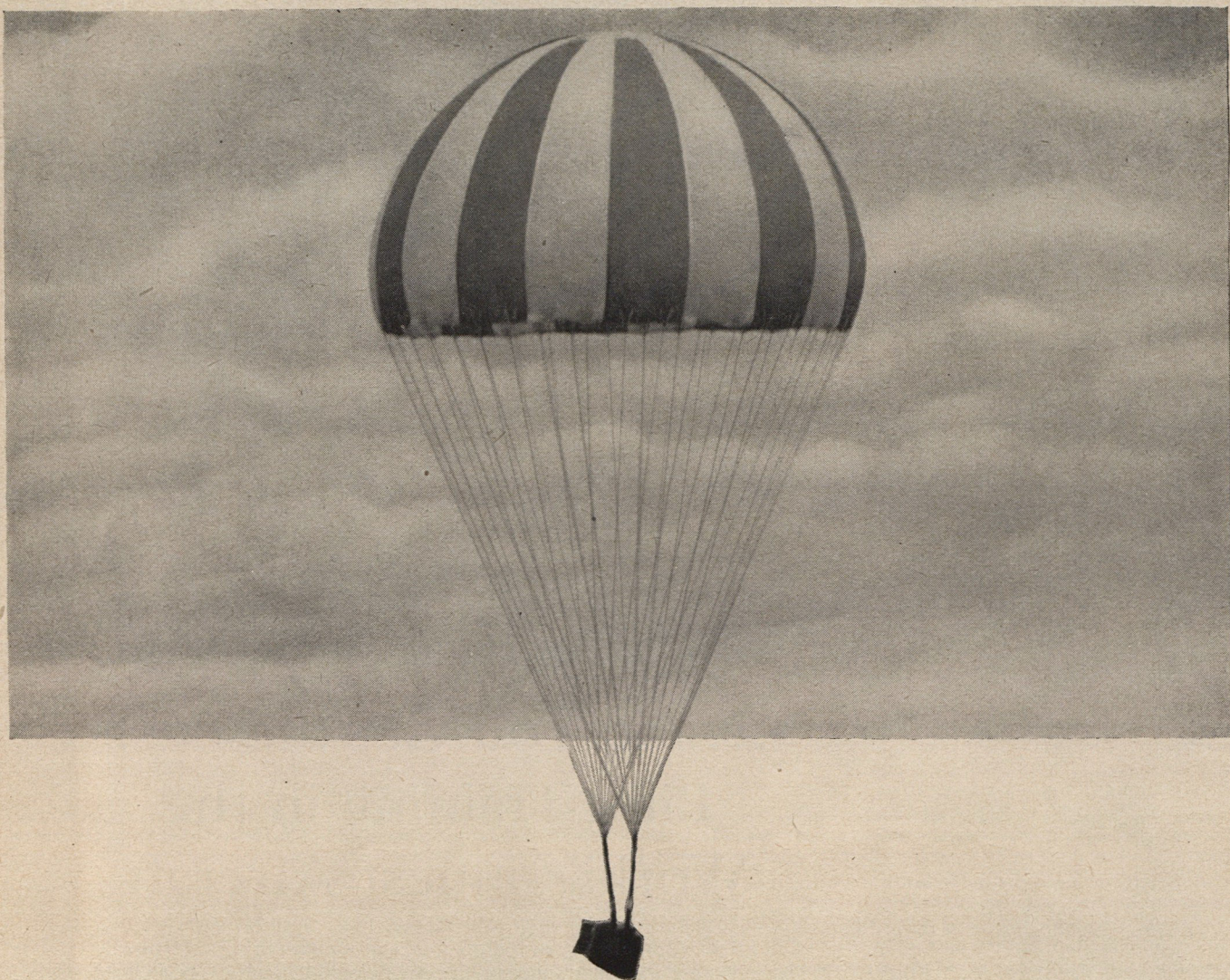


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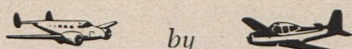
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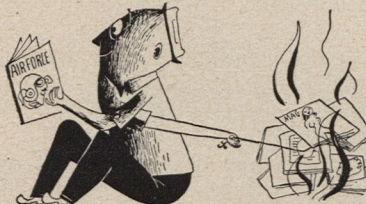
### Stop, We Love It!

*Gentlemen:* Without your coverage of the new Reserve training program in the June issue, many of us would never have learned all the details and objectives. Will have to agree that it seems to be a good program for Officers, but the EM is again on the short end.

Cullen G. Mitchell  
Ft. Worth, Texas

*Gentlemen:* Just received the June issue of AIR FORCE Magazine, and want to tell you this magazine has all other aviation literature beat by many a mile. I have cancelled all my other aviation subscriptions because I can find everything I want, and more, in AIR FORCE, truly a flyer's information file.

Lester Dahn  
Poughkeepsie, N. Y.



*Gentlemen:* I have been a loyal reader of the Association's magazine as well as an AFA member since the close of the last war. In my opinion the publication serves a worthy purpose to all Reservists and is of great value. I was particularly impressed by the clear and detailed manner in which AIR FORCE outlined the existing reserve program which is available to Air Force Personnel, as presented in the June issue. I personally found the answers to many questions which had been in my mind for some time.

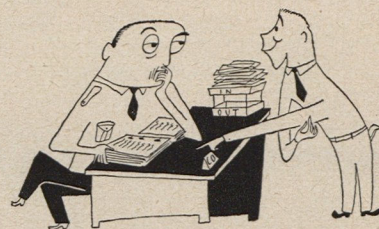
William V. Core  
Davenport, Iowa

*Gentlemen:* In your article on the new Reserve program you stated that there was no promotional system set up for enlisted men. I don't know about other outfits, but the 10th AF Reg. 39-3 provides for promotion of EM. This pertains to men in AFRTC units.

Don Misbeth  
Pontiac, Mich.

• AIR FORCE said there was no general AF regulation providing for promotion of enlisted personnel. There isn't. The authority exists in an old War Dept. circular which is still applicable to the Air Force. The trouble is too few Air Force authorities know of its existence. If the 10th Air Force has taken matters

in its own hands and issued a regulation under its own authority, fine. We heartily recommend that other Air Forces do the same.



*Gentlemen:* Just finished reading your June issue. Very interesting and enlightening information pertaining to the Air Force Reserve program is contained therein.

Charles A. Robbins  
Bloomsburg, Pa.

*Gentlemen:* I am a member of AFA and of course subscribe to AIR FORCE. I was quite interested in the article on the new Air Reserve in the June issue and thought its timing most opportune.

Joseph H. Marston  
Saginaw, Mich.

• AIR FORCE and Air Force Association would like to hear from more people in the field as to how the new program is working. On paper it looks good, but the test is in the execution. If you have any comments send them in.

### Impact

*Gentlemen:* I have read many stories recently on the situation in China, but none quite with the impact and interest as contained in "Wings Aren't For Dragons," by Charlotte Knight, which appeared in your May issue. I feel that the treatment of this subject was unusual, and many of the correspondents assigned here (justifiably envious of your roving gal reporter agree with me.

I happened to be in Guam when early copies of the May issue were received and personnel there also commented favorably on this article. The Reader's Digest would do well by reprinting excerpts for wider distribution of this interesting subject.

Flint O. Dupre  
Hq. Far East Air Force

### We Can Do Better Than That

*Gentlemen:* Can you identify at least one instance in which a warship of any significant size, under-way, was actually hit and partially or totally disabled by an aircraft in horizontal flight, excluding skip-bombing? I submit this inquiry in hope that you can assist me



in rebutting the scoffing of certain Navy Reservists.

Perry S. Patterson  
Chicago, Illinois

Indeed we can. Here is a partial list:

► U.S.S. *Princeton* — light fleet carrier, set afire by Japanese land-based aircraft on October 24, 1944, off Philippine coast. Burning hulk destroyed by American gunfire.

► *Abukuma* — Japanese light cruiser. Damaged by units of U. S. Navy on October 25, 1944. Disabled and sunk by USAAF the following day.

► *Lamotte-Picquet* — French cruiser in enemy hands. Sunk by USAAF in Indo-Chinese waters on January 12, 1945.

► *Gorizia* — Italian heavy cruiser, severely damaged by USAAF at Maddalena, Italy, in April, 1943. Later scuttled by the Germans.

In fairness, it should be pointed out that the successes scored by horizontal bombing against large warships were not as great in number as those achieved by dive-bombing, aerial torpedoing, and so forth. The reason is simple. Except in emergencies, land based, high-level bombers were seldom called in on attack missions against naval forces. They had other targets of more strategic value to attend to.



#### Hoover, and I

Gentlemen: For the first time in my life I'm hopped up enough to write a letter to the editor. Because the AFA has backed Federalization of the National Guard I have hesitated about maintaining my membership since I am also a member of the National Guard Association. For the record, I am now dead set against Federalization of the Guard. In this Wing of the Air Guard cooperation among the States appears to be excellent. Furthermore it extends to Wings as witnessed by this writer when he participated in the simulated strike on Washington late last year. I thought that was a fair show for weekend pilots to carry off. Our equipment is maintained better than in any outfit I have ever been in and morale is excellent. If we were federalized there is no guarantee that the regular Air Force would not institute a "Regular first, Air National Guard last" policy.

Robert S. Knapp  
Monroe, Mich.

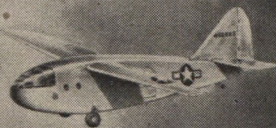
#### Pitch for Airpower

Gentlemen: . . . . Your magazine is magnificent. Keep up the swell work of selling the Air Force to people of this country. I've heard you accused of lobbying. Maybe so. But it couldn't be for a worthier cause—the strongest Air Force! Good luck.

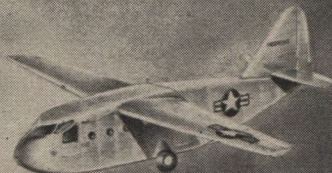
Michael A. Charles  
Albuquerque, N. M.

# AVITRUC

## 1945-1949



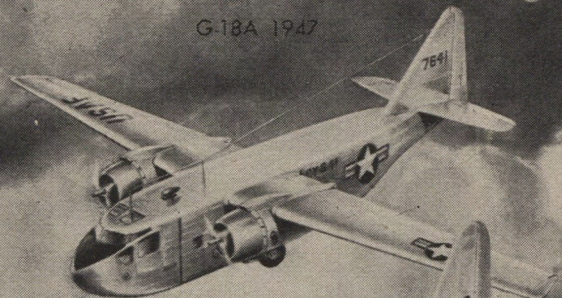
G-14 1945



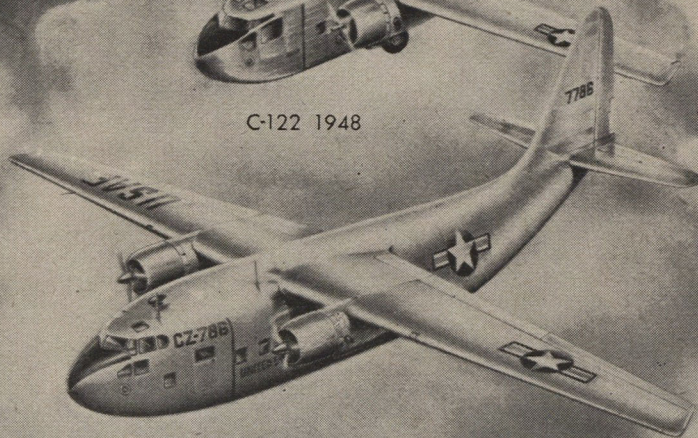
G-14A 1945



G-18A 1947



C-122 1948



C-123 1949

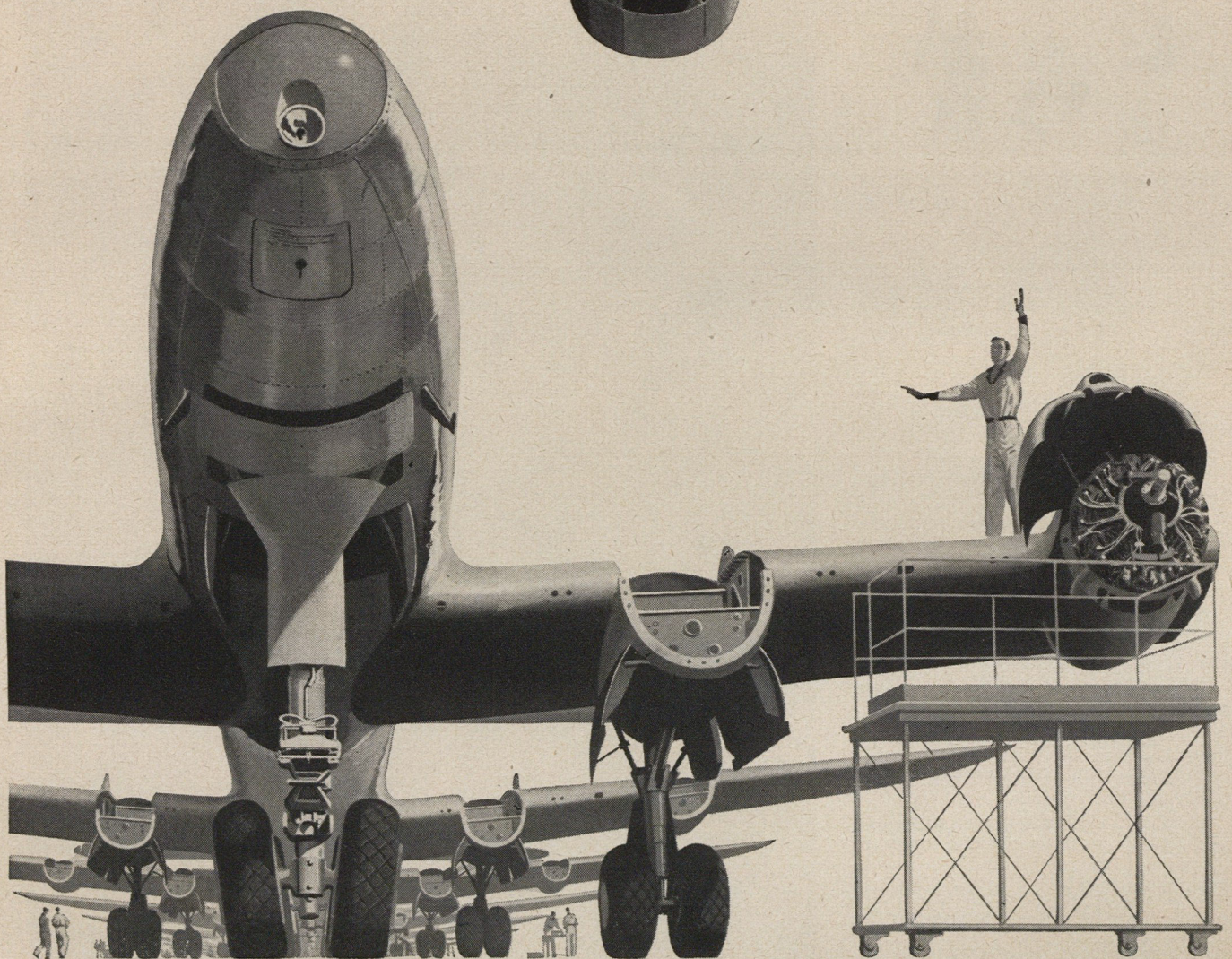


AIRCRAFT CO., Inc.  
WEST TRENTON, NEW JERSEY





# The Cargo Constellation



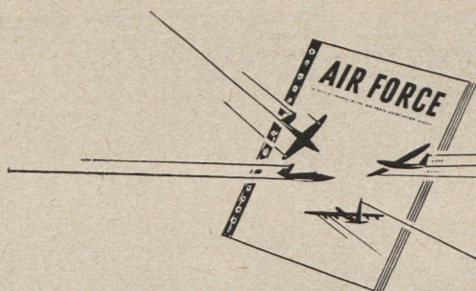


*...an airplane  
with a world  
of experience*

For more than six years, Lockheed Constellations have been steadily rolling off the production line. New orders, and re-orders, by leading airlines and governments of the world continue to tell its success story. This tried and proven Constellation also is available as a Medium Cargo Transport—the only medium cargo plane that is ready for delivery *this year*.

# Lockheed

LOOK TO LOCKHEED FOR LEADERSHIP  
© 1949, LOCKHEED AIRCRAFT CORP., BURBANK, CALIF.



## RENDEZVOUS

Where the Gang gets together

**HISTORIES WANTED:** I would appreciate any information which would enable me to purchase histories of the 301st Bomb Gp., 15th Air Force, and 319th Bomb Gp., 12th Air Force. I served in both organizations and would like to acquire these histories. S-Sgt. Robert L. Oyer, Hq & Hq Sqdn., 7th Bomb Wing, Carswell AFB, Fort Worth, Texas.

**WHERE'S BILL:** Am trying to locate S/Sgt. William Bishop whose hometown is Junction, Texas. He was stationed at Perrin Field, Texas, during the war and has since re-enlisted. John J. Marosits, 7 School St., Passaic, N. J.

**LOST BUDDY:** Would like to contact Capt. Marion A. Bradshaw, from South Carolina whom I knew at Spence Field. When last heard from he was at Wright Field, Dayton, Ohio. Jo Benton, 1231½ Fifth Avenue, Columbus, Ga.

**MORE REUNION:** We will hold the 4th Annual Reunion of former HAAF, Hobbs Army Air Force members in Portland, Oregon, during the third week of August. All those interested in attending please contact Granville Shannon, 6855 N. Atlantic Avenue, Portland 3, Ore.

**ANOTHER REUNION:** The 376th Heavy Bomb Gp Veterans Ass'n will hold its third annual reunion at the Seneca Hotel, Rochester, N. Y. July 29-31. All those interested in attending or desiring further information please contact Wiley Golden, 371 Probasco Ave., Cincinnati, Ohio.

**BLACK MARAUDER'S:** I am interested in seeing a history of the 391st Bomb Group (M), 9th Air Force (Black Death Marauder

Group) and wonder if you would publish this in your column to reach someone who may know something on this score. Also invite correspondence from former members of the Group with particular reference to the boys of the 575th Sq. of which I was a member. Hull E. Tuthill, Box 341, Mattituck, L. I., N. Y.

**MISSING:** My son, Adam P. Hafer, Jr., 13114516, a member of the 8th Air Force (94th Bomb Group, 333rd Sq.) was supposedly shot down over Berlin March 22, 1944. He was first reported missing in action, April 7, 1944. On August 5th, 1944, the Adjutant General's office reported him killed in action and the Graves Registration Commission was to advise me further regarding place of burial. Up to the present time I have heard nothing and I thought someone in your organization might have some information. Adam P. Hafer, Ticket Office, Outer Depot, Reading, Pa.

**REUNION:** Any former members of the 31st MR&R Sq., Det. "B", 9th AF interested in having a reunion in the near future, please write: E. N. Welding, 4260 Rockwood Avenue, Indianapolis 8, Ind.

**CHANGE OF ADDRESS:** Thanks for the publicity you gave the 305th Bombardment Group History in Rendezvous. It has already assisted in obtaining additional current addresses from former members of the group. Please insert the following change of address in an early issue. Col. Joseph J. Preston, Director of Operations, Hq. 311th Air Division, Topeka Air Force Base, Topeka, Kansas.

**ITALIAN PICS:** Would ap-

preciate anyone willing to contact me with pictures taken in Grottaglie, Italy, of the 449th Bomb Group (H). Also any pictures of the 716th Bomb Sq., taken any time from January 8, 1944 to Feb. 22, 1944. Edward (Skeets) Szymanski, 60 So. 3rd St., Brooklyn, N. Y.

**ANOTHER REUNION:** All former members of 38th T.C. Sq. attention! A reunion is to take place Sept. 4, 1949 in Dayton, Ohio. We need more names and addresses. If interested write immediately. Urban W. Dell, 217 Allen St., Dayton 3, Ohio.

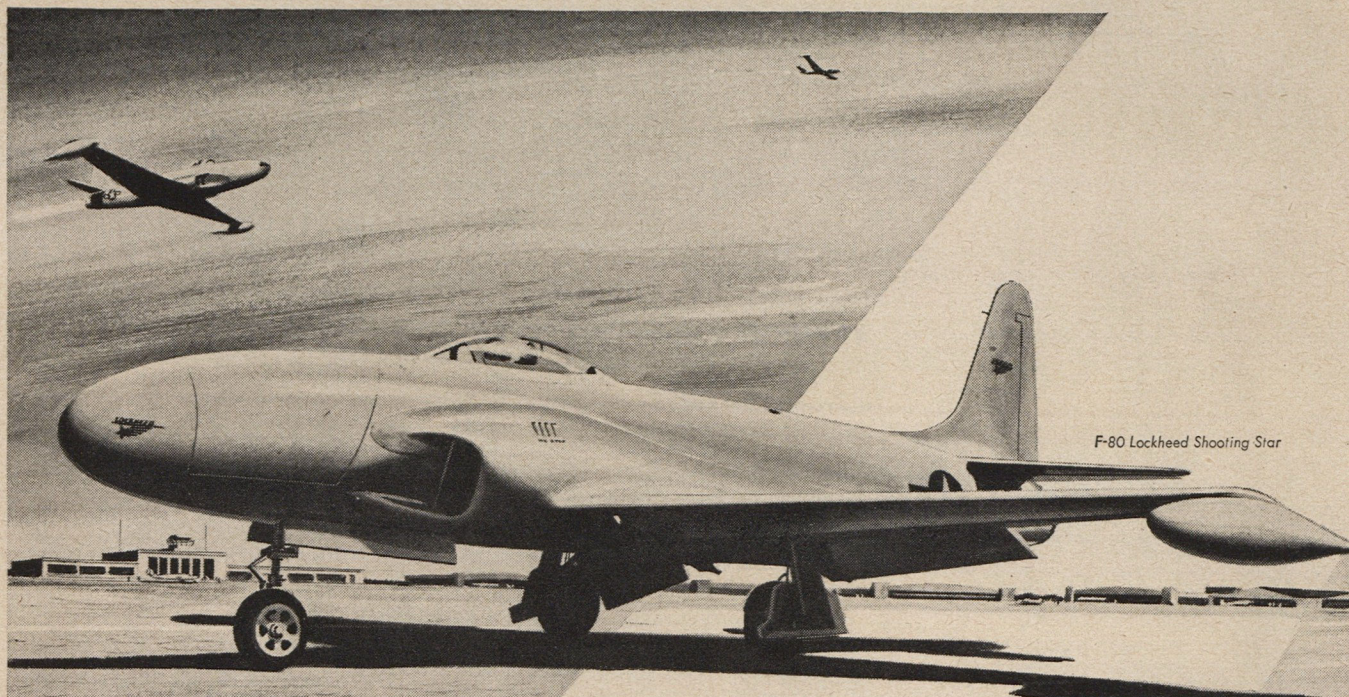
**COMCAR VET:** I would like to hear from any of the fellows that were in Hq. of the 2nd Combat Cargo Group in the Pacific. Richard K. Pool, 712 So. Harlan St., Algonia, Iowa.

**94th BOMB GP., 8th AIR FORCE:** Information is desired as to how many former members would be interested in obtaining a group history, if one can be gathered together and published. Also, the material that Ed Leonard gathered together for this purpose, but which disappeared, is sorely needed if we are to succeed. Anyone know anything about said material? A history is possible, but co-operation is needed. Dr. Gordon A. Summers, 911 N. Kansas Ave., Topeka, Kansas.

**GREAT BUNCH:** There never was a gang like the old outfit we used to have at MAAF Headquarters in Caserta Italy in the PRO office. Guys like Ben Kaplan, Bill Odlin, Jack Newman, Gordon Turrentine, "Sandy" Sanford and the rest. Would love to hear from them. Al Harting, Southwest Air-motive, Love Field, Dallas, Texas.

LOOKING FOR SOMEONE? ANY ANNOUNCEMENTS TO MAKE? WRITE RENDEZVOUS AND RENDEZVOUS READERS WILL WRITE YOU.





F-80 Lockheed Shooting Star

## PROVED PERFORMANCE

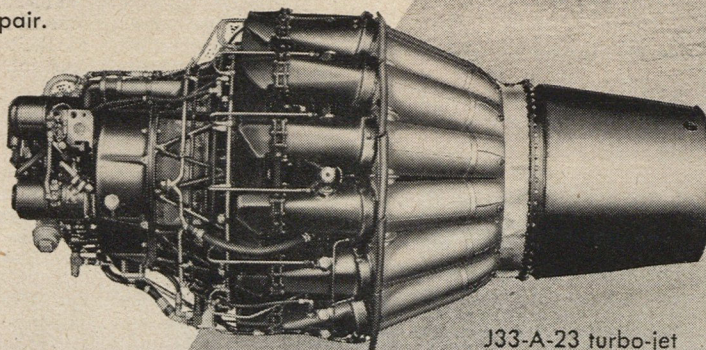
With a total of more than 100,000 hours of actual flight time in their log book, Allison aircraft turbine engines have proved themselves with dependable performance under many varying conditions of service and of weather.

Now operating 300 hours before overhaul, Allison J33 jet engines offer more useful service in the air with less lost time on the ground for service and repair.

Air Power is Peace Power

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Other Allison-powered airplanes:  
Republic F-84 Thunderjet  
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Northrop YB-49 Flying Wing  
Grumman F9F-3 Panther

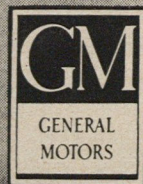


J33-A-23 turbo-jet

# Allison

Builder of axial and centrifugal  
flow turbine engines

DIVISION OF



Indianapolis,  
Indiana





Boeing B-50 Superfortress "Lucky Lady II" lands at Texas starting point after 23,452-mile non-stop flight around the world.

## ***Air defense - global style***

When the "Lucky Lady II" rolled to a stop at Carswell Field, Texas, on March 2, Americans abruptly realized the tremendous new meaning which the U. S. Air Force has given to the phrase *global air power*. The capable airmen who circled the earth non-stop in a new Boeing B-50 Superfortress demonstrated that the U. S. air arm can now fly anywhere, any time.

The 94-hour refueling flight was daringly conceived and boldly executed. It stands as an impressive

tribute to the vision, planning and follow-through of the men whose trust it is to keep America strong in the air.

It confirms the versatile Boeing B-50 as a bulwark of our air defense. Successor to the famed B-17 and B-29, this airplane has behind it the wealth of bomber experience of Boeing's great engineering staff. Its design permits continued development, with future growth in engine horsepower, which will still further increase its speed, range and usefulness to the nation.

To you, the B-50's globe-circling flight has more than purely military significance. It is a striking example of the endurance and reliability of a basic design and a power plant now going into regular commercial service with the new, twin-deck Boeing Stratocruiser—the world's first true super-transport. In the Stratocruiser you'll get the same dependability and stamina that carried the B-50 around the earth—plus luxury aloft such as you've never dreamed of.

Recent records by Boeing planes: XB-47 Stratojet: transcontinental speed record, Moses Lake, Wash., to Andrews Field, Md., 3 hrs., 46 min.; Boeing Stratocruiser: transport record, San Francisco to Wash., D. C., 6 hrs., 13 min.; B-50 Superfortress: first around the world, non-stop.

# **BOEING**



# Airpower in the News

Congressional investigation of procurement and performance of the B-36 has been authorized by the House, and an appropriation of \$25,000 has been approved. The inquiry, which will go into whole AF concept of strategic bombing, is expected to be opened within next few weeks . . . Secretary Symington has assured the AF's full cooperation to Rep. Carl Vinson in the investigation of the air fortress and "collateral matters." . . . House Armed Services Committee on June 1 accepted JCS's decision to abandon efforts to test B-36 against Navy's best jet fighter "for security reasons."

A revised Armed Forces pay bill, which increases pay for privates three per cent and brigadier generals 37 per cent, has passed the House and is now in Senate Armed Services Committee, where it is expected to remain for a week.

USAF will begin its Airman Career Program within next few weeks, establishing systematic plan of assignment and training, and orderly advancement of qualified enlisted personnel on consideration of ability, integrity and initiative.

The AF's newest penetration fighter, Lockheed XF-90, made its first flight on June 4, at Muroc AF Base, remaining aloft for 37 minutes . . . AMC engineers at Wright AF Base continue their six-week job of wrecking B-36 to determine how much weight the giant plane can carry . . . Crack "Hurricane Hunters" of Kindley AF Base, Bermuda, began their annual summer-fall storm patrol on June 1, equipped with new weather plotting instruments that make life in storm-threatened areas safer than ever.

Development of new photo view-finder by AMC at Wright-Patterson AF Base may solve problems involved in carrier landings. The device gives pilot clear image directly below or below and ahead of aircraft he is flying . . . AF officials said recently they expect to start construction of 3,000-mile rocket range at Banana River, Florida, by July 1.

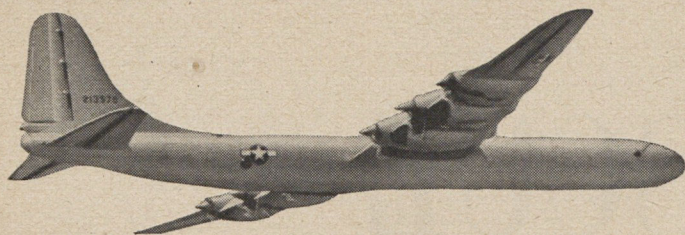
In the "civilian component" department, 400,000 officers and men in 494 Federally recognized units of Air National Guard will participate in most extensive field training maneuvers in its history this summer . . . Secretary Johnson said in June 2 Creighton University address that strength and peace of U.S. depends on "prepared citizen soldier" rather than large standing armed forces.

Fighters, bombers and jets from USAF, Britain and Netherlands will join forces in world's biggest peacetime international air maneuvers in the South and East of England from June 25 through July 3, to test Britain's air defenses.

Five USAF installations formerly designated as "Fort", Slocum, George Wright, Benjamin Harrison, Pepperell, McAndres, have been renamed AF Bases. Three bases have been renamed in honor of deceased AF personnel. Colorado Springs Tent Camp will become Ent AF Base in memory of Maj. Gen. Uzal G. Ent, Topeka AF Base is now Forbes AF Base in honor of Major Daniel H. Forbes, Jr., and Waco AF Base is redesignated Connally AF Base for Col. James Thomas Connally.

BRIEFS . . . Gen. Vandenberg and Charles A. Lindbergh recently returned from a "routine" visit to Europe to "look around." . . . Gen. "Hap" Arnold was made first five-star general of the AF on June 2 at ceremonies in President Truman's office . . . Maj. Gen. Leo Walton, deputy director of Secretary of AF Personnel Council, will retire June 30 after 30 years service . . . Under Secretary Stephen Early has been named NME representative on President's Air Coordinating Committee by Sec. Johnson . . . Major Allen B. Gaston has been appointed Military Aide to Secretary Symington . . . An AF spokesman on June 3 reported that Howard Hughes has purchased development rights of twin-jet XH-17 helicopter . . . Harold C. Stuart was recently appointed special consultant on reserve affairs and civil aviation to Secretary Symington.





## ANNOUNCING WORLD'S LARGEST PRODUCTION PROPELLER

# "Custom-Built" BY Curtiss-Wright

### FOR THE B-36

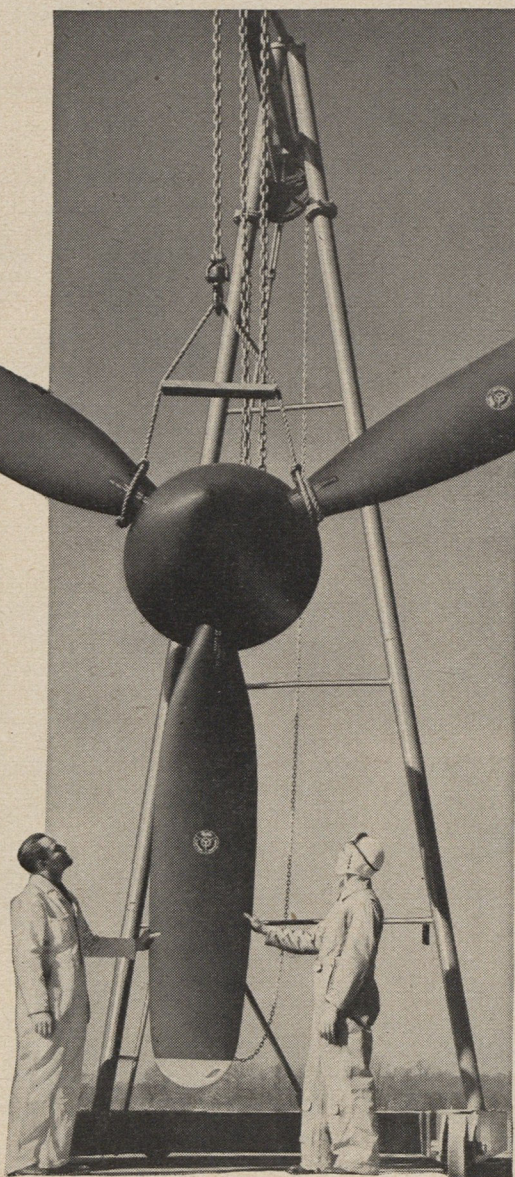
Curtiss-Wright's continued leadership in research and engineering has produced an entirely new development in the propeller field—the world's largest production propeller. This giant propeller—19 feet in diameter with a

21-inch blade chord — was designed specifically for the Air Force's B-36 and is custom-built throughout.

► This propeller's pusher location on the trailing edge of the wing, causing abnormal loads resulting from airflow disturbance, involved new and difficult design problems. But these were successfully solved and a *practical* propeller of huge size, featuring many new advantages was developed . . . as the result of many man hours in engineering, research, development and testing.

#### Many service-proved features

The new Curtiss Propeller also provides *reverse* thrust for smooth, air-cushioned landing and more effective braking . . . *automatic synchronization* which



enables pilot to control *six* engines as *one* with single-lever action . . . *hollow steel blades* for light weight and extra strength. ► This new propeller now servicing the giant B-36 is another in-

dication that Curtiss-Wright's continued leadership in the propeller field is meeting *today's* while anticipating *tomorrow's* aviation needs.

#### Many new features included in new Curtiss Propeller

- . . . *constant speed in reverse*
- . . . *instantaneous reversing and feathering*
- . . . *pitch change from rotation of propeller*
- . . . *de-icing by heated air passing through hub and hollow steel blade*

A PRODUCT OF  
CURTISS  WRIGHT  
FIRST IN FLIGHT



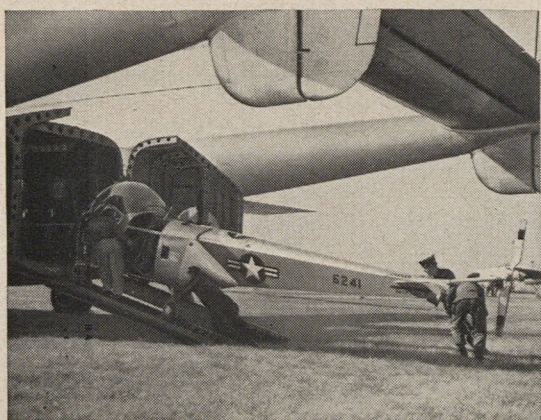
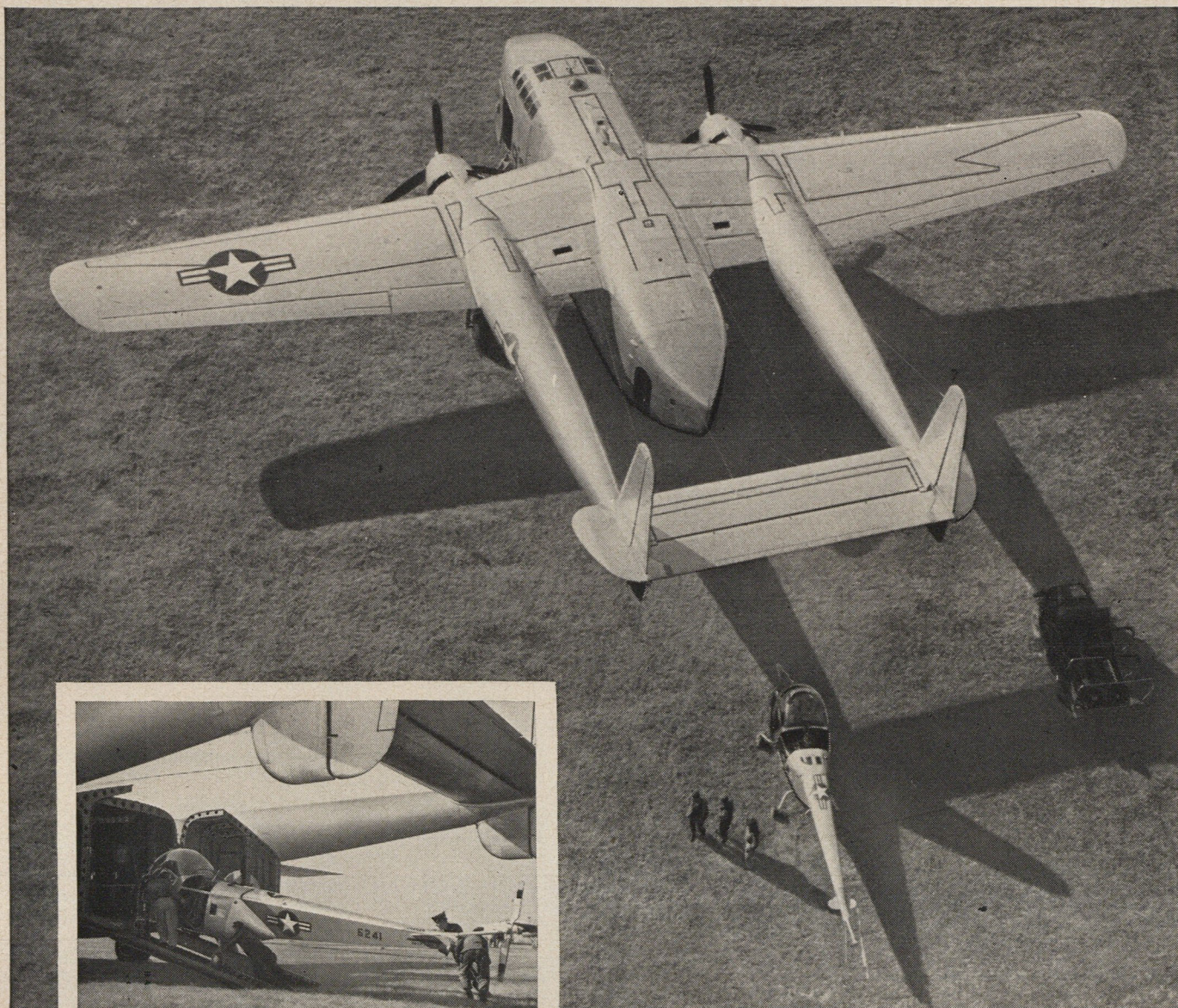
PROPELLER DIVISION, CALDWELL, N. J.

# CURTISS ELECTRIC PROPELLERS



# AIR RESCUE

Over faraway jungles, deserts and mountains, helicopters of the USAF Air Rescue Service have flown in search of stranded airmen and passengers. The helicopters got there because they have been given a "mother" ship—the Fairchild Packet—that transports them over distances far beyond their range. Thus, our Air Force has added a new ability to the versatile Fairchild Packet—increasing the importance of its part in the development of modern airborne military tactics.



Mission of Mercy—Air Rescue personnel load a helicopter into the spacious cargo hold of a Fairchild Packet.



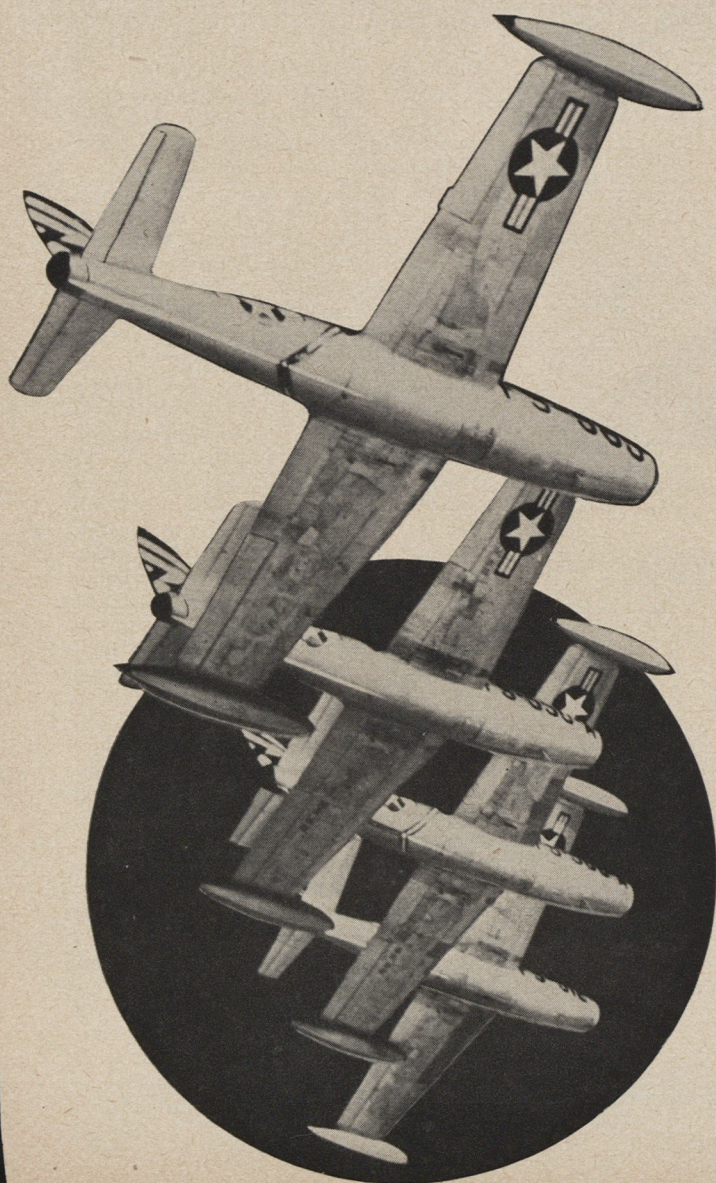
ENGINE AND AIRPLANE CORPORATION  
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Divisions: Fairchild Aircraft, Hagerstown, Md. • Ranger Aircraft Engines, Farmingdale, N. Y. • Nepa, Oak Ridge, Tenn. • Fairchild Pilotless Plane, Farmingdale, N. Y.  
Al-Fin, Farmingdale, N. Y. • Subsidiaries: Stratos Corporation, Farmingdale, N. Y. • Duramold Aircraft Corporation, New York 20, N. Y.



## IS THE FIGHTER OBSOLETE?

A lot of people have the notion that the inter-continental bomber has made the fighter a thing of the past. But the US Air Force has different ideas



Shortly after the last war a group of Congressmen on an "evaluation tour" of the European Theatre stopped at headquarters of a major command. "What," asked one of them, "was the most efficient weapon of the war?" The conversation had been about the lessons learned from the great tragedy and how those lessons could be applied to securing the peace. Apparently the Congressman had in mind that the United States could most

handily assume pre-eminence in the field of arms by simply determining the one most "efficient" instrument and henceforth concentrating on it solely.

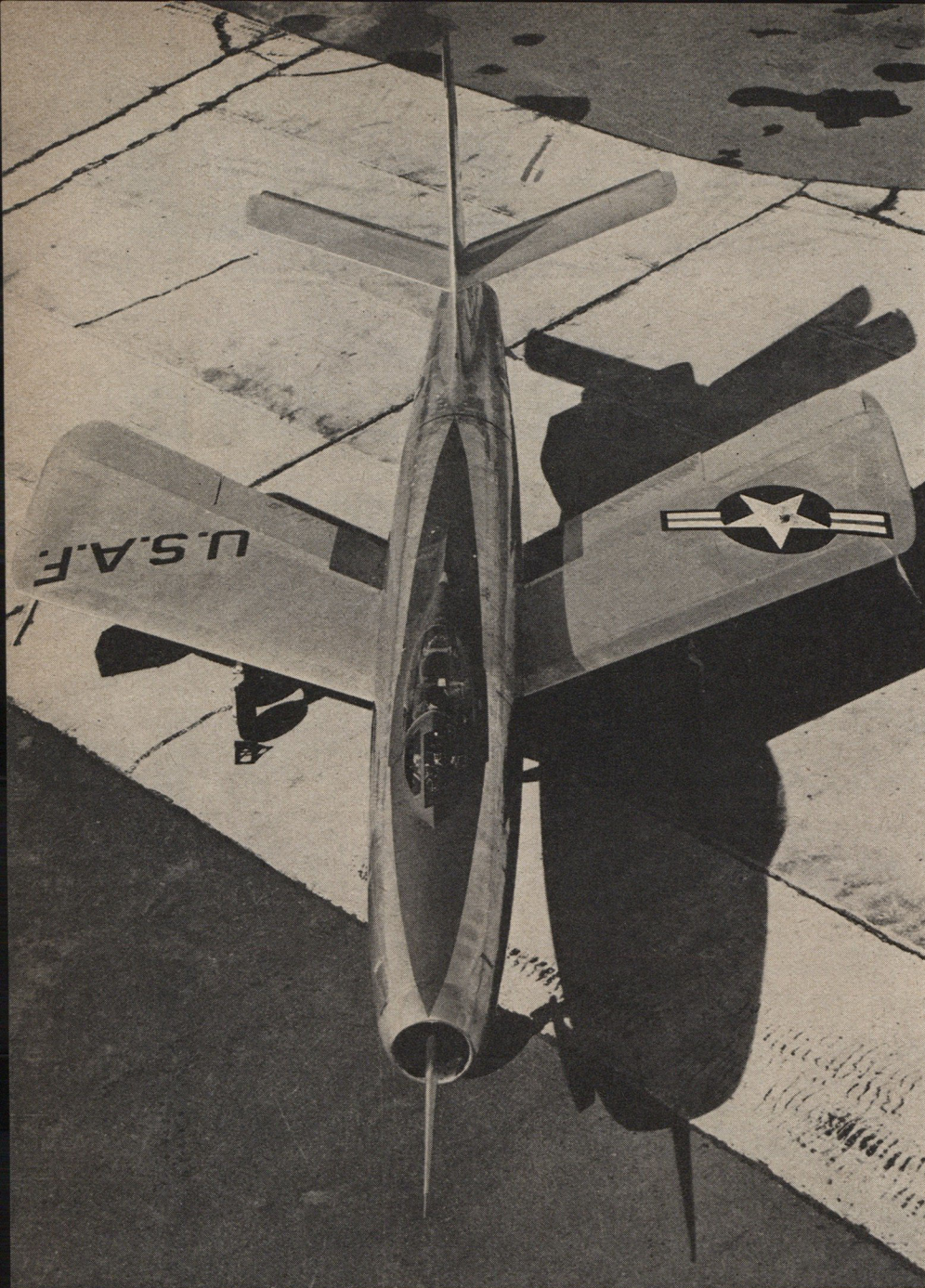
With a patience never before suspected by the subordinates on his staff, the officer to whom the inquiry was directed blinked several times, cleared his throat and replied calmly, "Sir, I could be facetious and say the atom bomb, but actually there were cases where the bazooka was a better instrument than the bomb would have been." And from there he went on to explain a few of the rudiments of specialization in modern war. There was a time when superiority in a single weapon—a stronger sword or a longer lance—might have been the margin of victory. But since then it has taken superiority in an ever increasing number of instruments to gain the edge, largely because more of them have been employed. Furthermore, since specialized weapons have pursued their own course of development down widely separated paths, superiority in one type rarely makes obsolete another type which has been developed for an altogether different purpose. This will be true until the day of the "absolute weapon" at which time, if it is an absolute weapon, we can make plow shares out of whatever else is at hand.

But as yet that day is nowhere in sight, and it is for this reason that the current bomber-fighter controversy is as pointless as the inquiry of the roving salon. Nobody who is familiar with the problem contends that the combination of the a-bomb and the intercontinental bomber is the absolute weapon, and that it is therefore time to make plow shares out of the fighters.

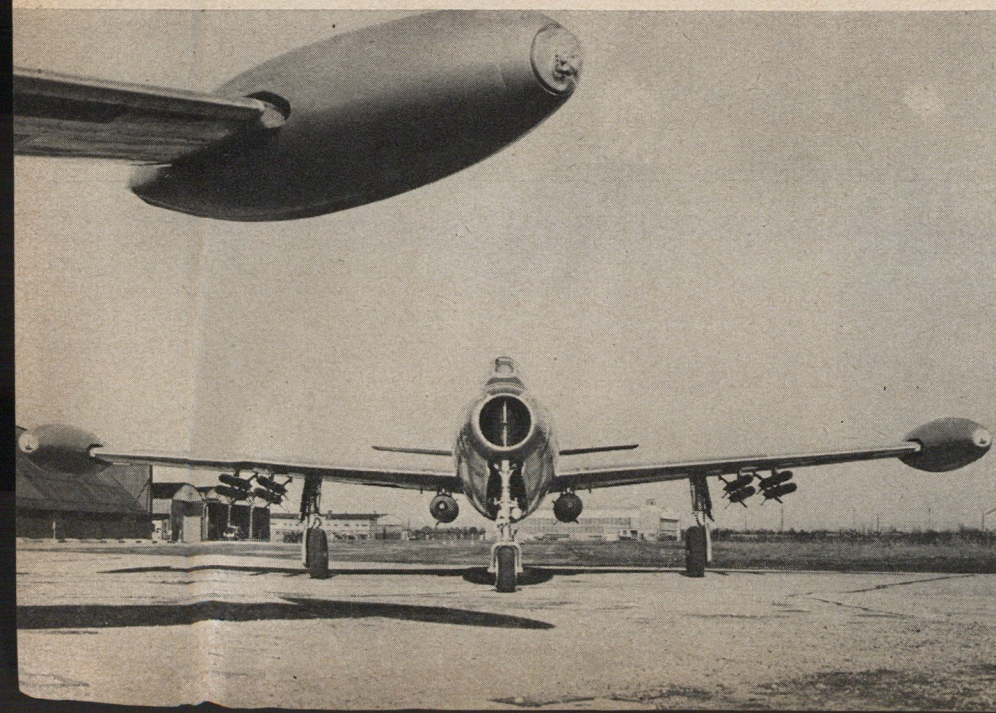
Old timers will remember back in the early Thirties when the first Martin B-10 outpaced the best pursuit plane of the day both in altitude and speed. The pilots of the old P-26's and the P-12's wondered if it was time to turn in their wings. But then came the P-35, the P-36 and the P-40 and the fighters again gained supremacy. For a short while they lost it once more to the B-17, only to regain it with the P-38 and the P-47.

Now, with the advent of the B-36, the best fighters have once again become inadequate if you assume (as you must) that the "enemy" has a bomber as good as ours. They are inadequate on at least two counts out of three; escort and interception. As a vehicle of ground support there is less cause for concern. But





Latest models in the Republic stable are the XF-91 high altitude interceptor above, and bomb and rocket totin F-84D, a fine ground-support plane, below.



## ARE FIGHTERS OBSOLETE? CONTINUED

this is the point to remember. The B-36 has not altered the *requirement for fighters*. It has altered the *fighter requirement*.

Actually this is little more than another turn of a familiar cycle, but right now it is time to halt further refinement of the all-purpose fighter and design from the ground up a plane (or in this case several planes) to fit the new requirements. This is exactly what the Air Force is now doing. It's a ticklish job, for it necessitates a certain thinning out of fighter resources. Even if the new planes cost no more than the old (which is far from the case) it would be impossible, within economic limitations that exist, to build and operate as many of *each of three* new types as we once built and operated of *one* type. Striking the most efficient balance not only between types of fighters, but between fighters and bombers is a complete study in itself, however. For the purpose of this article we are concerned only with the new fighter missions created by the intercontinental bomber, and the types of planes required to fill those missions.

### THE NEW INTERCEPTOR

By far the most urgent requirement brought about by the intercontinental bomber is the development of a high-performance interceptor to cut the enemy "B-36" short of our own continental targets. This is a brand new requirement for an American Air Force. To a certain extent the British had the same problem in the early days of the blitz. They responded with the Spitfire—a specially designed interceptor. But today the problem is greatly aggravated, for not only does the enemy's bomber fly higher and faster, but it also carries with it a mass-destruction weapon. In the days of the blitz it was rather academic whether the bomber was destroyed before or after bomb release. Getting the plane was the important thing. Today it is imperative that the kill be made *before* the bomb release. The day of "fire and fall back" is gone forever. Because of speeds and the difficulty of maneuvering at high altitudes, the fighter will have to do the job with a single pass, and he will have to be ready to do it night or day, rain or shine. Obviously General Vandenberg wasn't kidding when he said we didn't have a fighter now that could do the job. Neither has the Navy, nor anybody else that we know of. Of the planes now assigned to operating units, the F-86 comes closest. But it is delinquent in maneuverability at altitude and in radar equipment.

Within the next year, and for perhaps five years thereafter, interceptors of the XF-89 and XF-94 type will probably become the backbone of our continental defense force. But even these planes are considered refinements of the all-purpose fighter, rather than



a new type built "from the ground up."

What will the "F-X" look like and how will it operate?

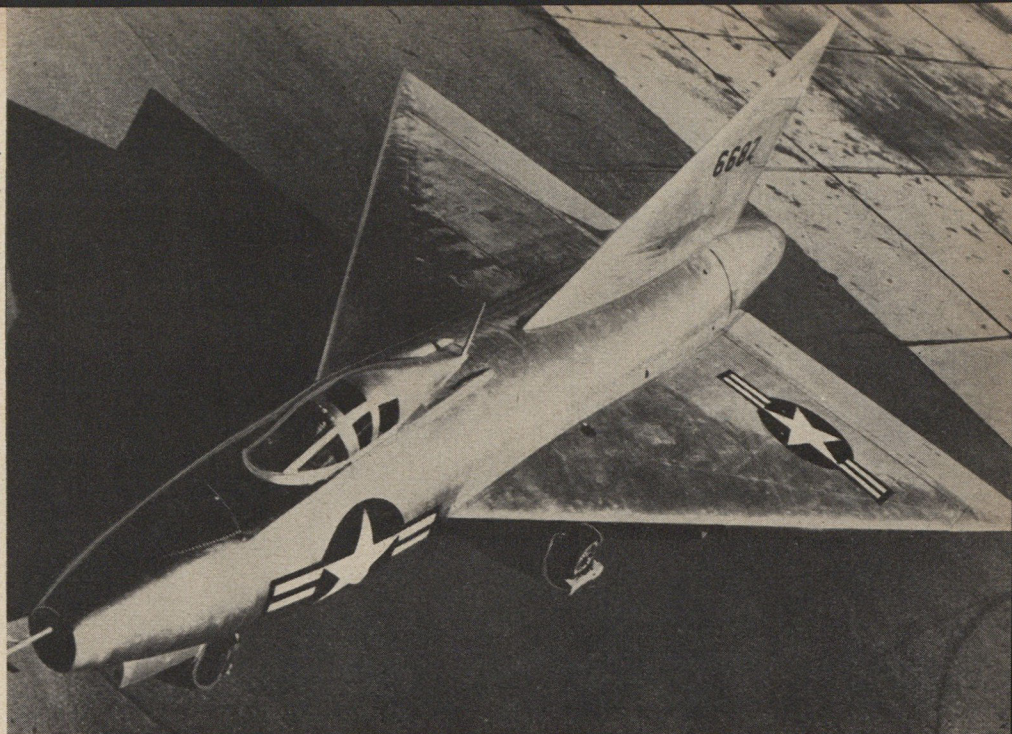
In configuration it is likely that it will be of delta wing design similar to the Consolidated XF-92A. Tests indicate that this configuration offers the greatest stability and maneuverability at altitude. It will operate at speeds somewhere in the neighborhood of 600 knots plus at altitudes of 60,000 feet and above. Miniaturized and perfected radar equipment will make it possible to eliminate the second man in the current version of the all-weather fighter. The pilot himself will be the radar observer. He will have in front of him a single radar tube that will show at a glance his position in relation to the horizon and to the enemy—in color. No longer will he have to be guided by the verbal instructions of a radar observer who has his head buried in a box in the back seat.

It's radius of action will be close in to its own target, "like the goalie on a hockey team." It will be ground alert. That is it will not "patrol" for the enemy as fighters have done in the past. Instead it will take off on the instructions of the operator of the ground radar screen which is even now under construction around our continental perimeter. The pilot of the F-X will take his ship to the end of the runway and then turn it over to the ground control operator. The latter, working from a radar screen with a radius of at least 200 miles, will assume command of the airplane from the end of the runway to a spot within perhaps twenty miles of the bomber. Up until this point the pilot will act more as a "supervisor" than as a pilot. As soon as the bomber pip appears on the fighter's radar scope, the pilot will turn a knob which will switch control from the ground observer to an automatic pilot in the fighter itself—an automatic pilot which will home without assistance from the flesh and blood pilot on the enemy and fire the air-to-air missiles at the precise instant the enemy comes into range. It is possible that the pilot himself may never even see the enemy.

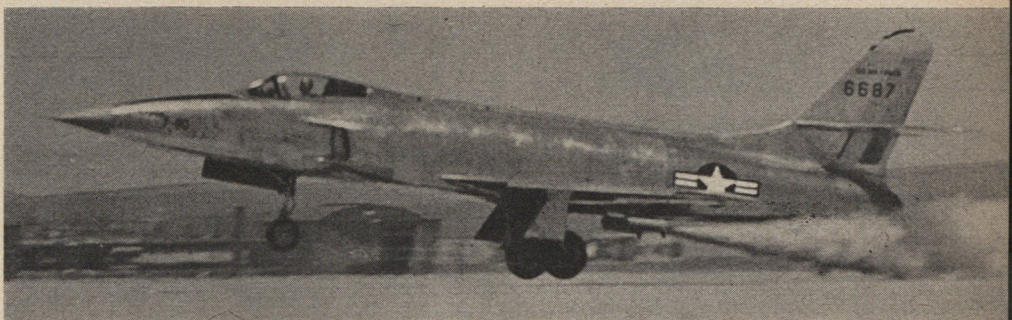
Sound fantastic? Not at all. Anything less than this, the Air Force feels, would not satisfy the new requirement. And they have no intention of letting this obligation go by default.

#### THE NEW ESCORT FIGHTER

There is a theory that it is more economical and more feasible to make the intercontinental bomber entirely "self sufficient"—that is make it capable of defending itself against enemy interception—than it is to try to develop a fighter that can escort it and protect it at the scene of the target. In the first place, reason these theorists, the big boy can take care of itself 99 times out of a hundred right now, and there is therefore less need for the "little friends." In the second place, they say, to be capable of the range of the bomber and to be able to maneuver even as well as the bomber at the target, a fighter would have to be nearly the bombers' size. Even with minimum attrition there would probably be as



Great things are expected of Delta Wing like one employed on XF-92A above.



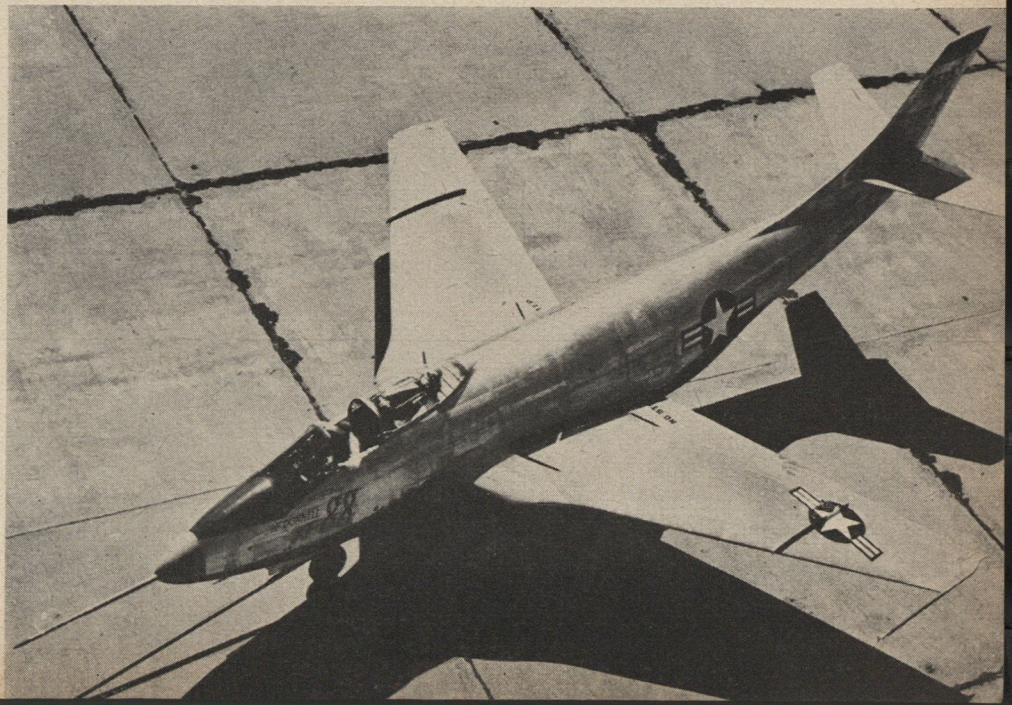
Lockheed's F-90 takes to the air at Muroc for initial flight with JATO assist.

many planes and as many lives lost with as without fighters—at the cost of putting up a considerably heavier force.

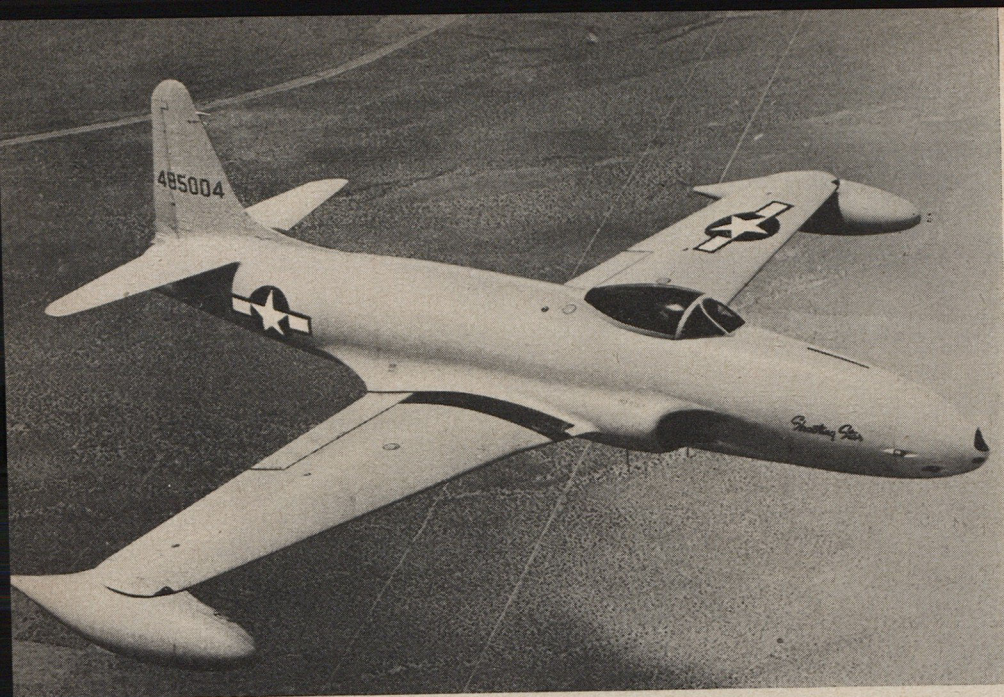
To an extent these theorists are correct. But it must be remembered that since our bombers will carry weapons of mass destruction (just as we assume the enemy's will) the enemy can be expected to exert effort equal to our own to cut us short of the target. The

requirement for an escort is therefore just as great as it ever was—more so if you consider the unit cost of the bomb and the multiplied seriousness of an unsuccessful mission. The only time in the future when the requirement for fighter protection might be lessened would be in the very opening stages of the conflict when the enemy would have little or no means of determining in

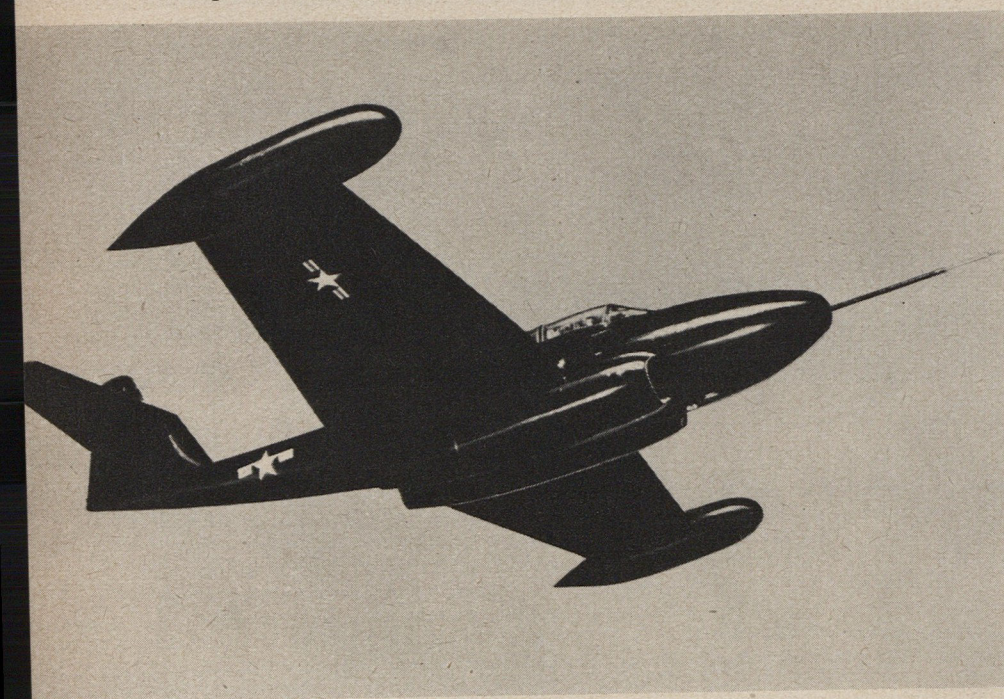
The XF-88 penetration fighter is McDonnell's first plane in Air Force lineup.



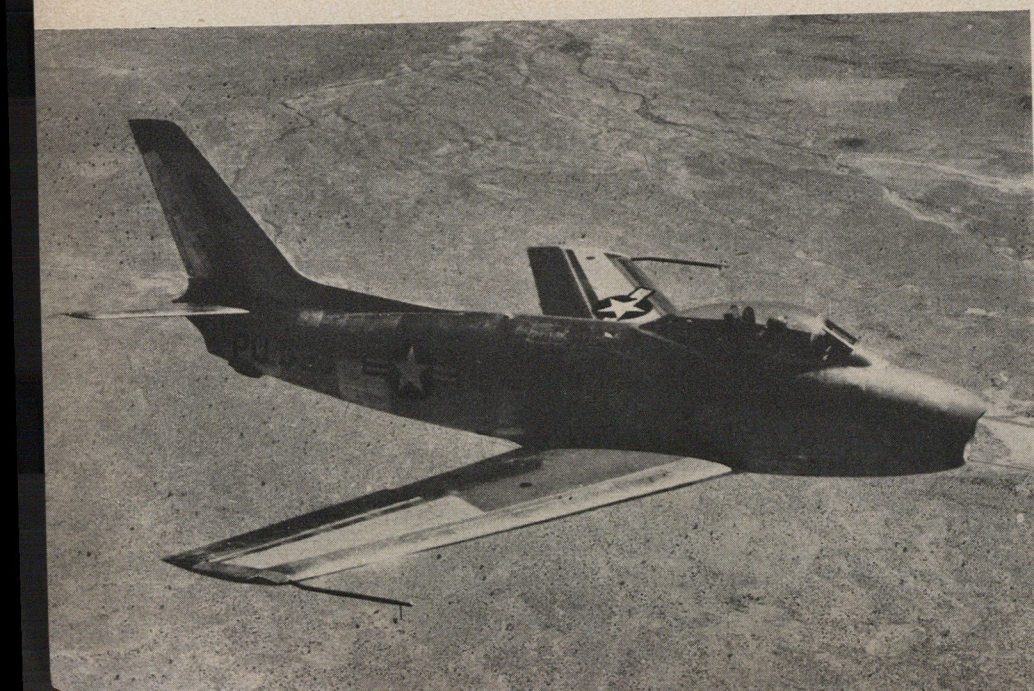




Operational units still use F-80 although it no longer fills requirements.



For several years to come Northrop XF-90 and Lockheed 94 on opposite page will be backbone of all-weather fighters. Below, world's fastest. The F-86.



## ARE FIGHTERS OBSOLETE? CONTINUED

which direction we were going to point the finger of our attack—when his intercepting forces had to be spread so thin over a wide perimeter as to make them practically useless. In this initial period the attacking force would enjoy the advantage of offensive flexibility and surprise, but it would be an advantage that would soon dissipate itself, for as any future war wears on, as the geography is "used up," our lanes of approach will rapidly become limited and standardized, and as soon as they do, some sort of fighter protection will become as requisite as ever.

It is understandable that the development of an escort fighter has been given second priority to the more immediate requirement of an interceptor. Nonetheless, the escort fighter for the intercontinental bomber will require, and get, the same "from the ground up" approach as the interceptor. There are none in existence now. There are some, refinements again of the all-purpose plane of pre-continental bomber days, coming off the line now which will do until the "real thing" comes along. Included are the F-88, F-90, F-93.

What the real thing will look like is more nebulous at the moment than the "F-X" interceptor. Perhaps it will be a parasite of some sort. Perhaps it will be a fighter capable of taking fuel from its parent ship in flight. Whatever it is, it will be there—both the enemy and our own fighter boys who fear they have lost their jobs can be sure of that.

### THE GROUND SUPPORT FIGHTER

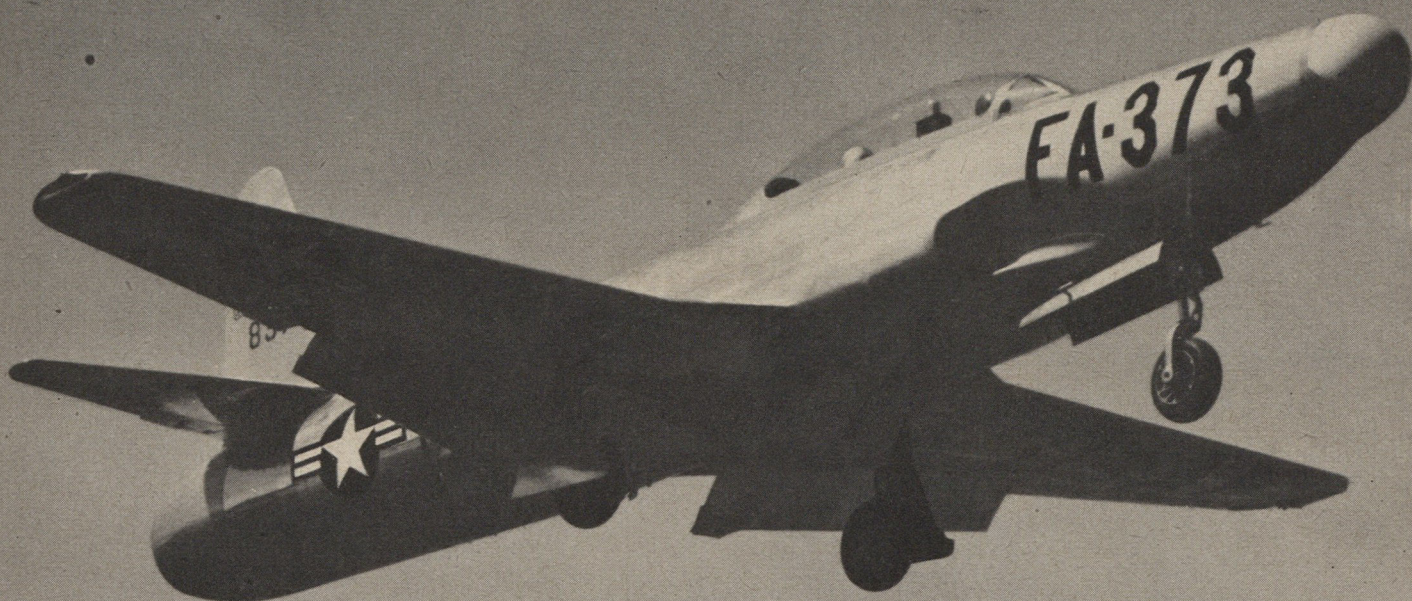
It is likely that as long as it requires an army to win a war there will also be a requirement for air-ground support. Happily the planes we now have seem adequate, at least at the moment. The Republic F-84D—the latest model with rockets and bombs—is probably the world's best ground support machine.

Actually a high speed plane is not entirely requisite for the mission of ground support. In fact many ground officers would just as soon use the old reciprocating F-47s and F-51s. But there is a good reason why this is not practical. It is simply this: To be able to extend ground support to the foot soldier, the air force must first have at least local control of the sky—control maintained by the support fighters at the same time they work with the ground forces. A piston-engine plane couldn't do both jobs. It might handle the ground problem very nicely, but it would not be able to protect itself from the enemy's planes. It would require jet cover, which would be absurd.

Obviously this is far from a complete discussion of the matter.

But to begin with it is enough to set at rest any ill-conceived notions that the Air Force is ready to abandon the fighter program. The revolution in bombers has already come. The fighter revolution won't be far behind.





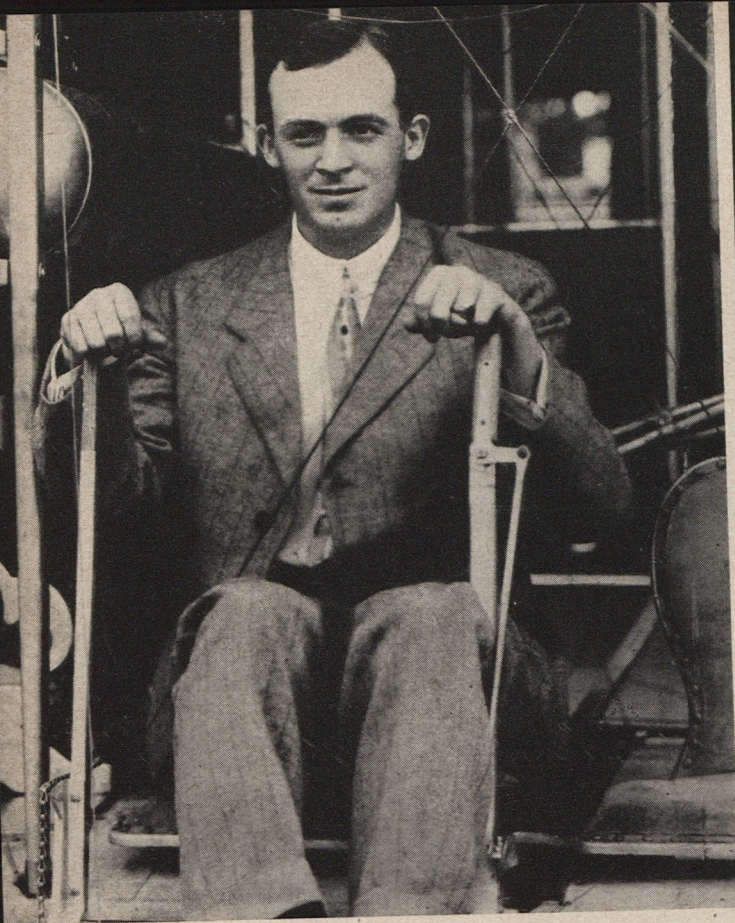
**THESE ARE FIRST PICTURES** released of Lockheed's new XF-94 designed to fly and fight in pitch darkness. Actually it is a radically advanced version of the F-80. Heavily loaded with radar, its mission will be high-altitude intercept-

tion of the enemy under conditions that would ground a good part of our present day fighter force. Powered by an Allison J-33 jet engine, the 94 gets additional thrust and stability at altitude by the incorporation of an after-burner.

The introduction of the 94 plainly points the way in which the Air Force is moving. After this will come smaller one-place planes, made possible by smaller radar units, and radical configurations. This will do in meantime.







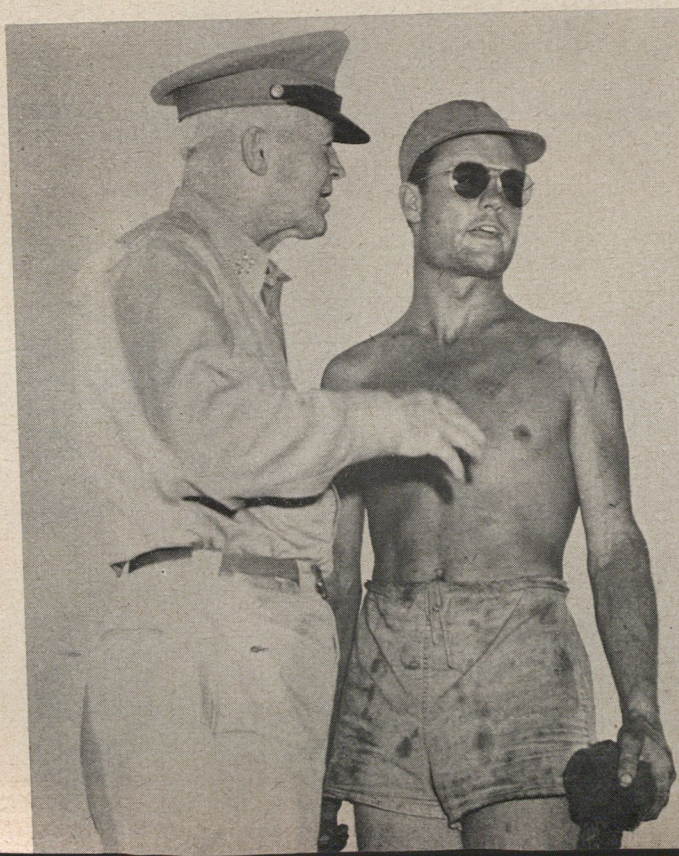
Second Lieutenant Henry Arnold at the controls of his first aeroplane at Wright Flying School, Dayton, Ohio in 1911.



Thirty-eight years and thousands of plane rides later, Hap Arnold is made the nation's first General of the Air Force.

## GENERAL of the AIR FORCE, H. H. ARNOLD

The Old Man leaves his farm just long enough  
to go to Washington to get a new title



For three years now Hap Arnold has been content to rest in the relative obscurity of his farm in Sonoma Valley, California and tend his fruit trees and white-face cattle. Only occasionally has the public heard from the man upon whose shoulders a great deal of its own fate once rested. Once in awhile the Sonoma Index-Tribune carries a story with an Arnold byline. Even less frequently a roving correspondent finds his way up the winding road to El Rancho Felix to write a feature on what the Old Man is thinking.

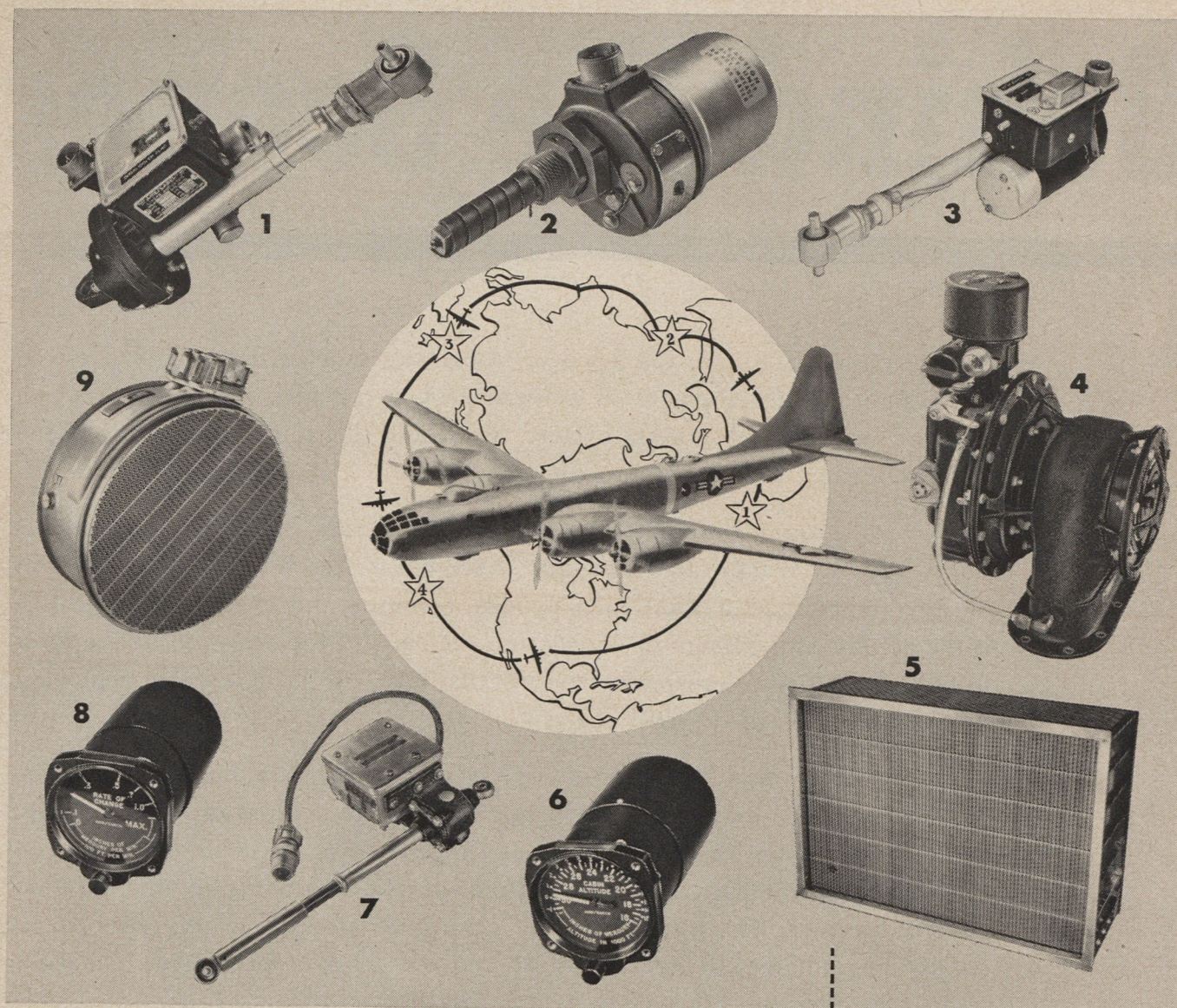
What the public might be surprised to learn therefore is that Hap Arnold is still a considerable power in the molding of Air Force policy. Two days a week he motors to nearby Hamilton Field where he has an office to attend to official and semi-official correspondence. How much of that mail is to and from the Pentagon in Washington is nobody's business but Hap Arnold's and the people with whom he corresponds, but by any measure the volume isn't slight.

It was something more than a gesture therefore when Congress passed a bill last month which said in part, "Any individual transferred in the grade of General of the Army to the United States Air Force . . . is herewith redesignated General of the Air Force." By these provisions H. H. Arnold became the first General of the Air Force in the nation's history. President Truman made it official with the presentation of an illuminated certificate in Washington. But within a week Hap was back at El Rancho Felix with the fruit trees and cattle. At the moment it looked as though his next appearance in the news would be four weeks hence when his own story of the war "Global Mission" was scheduled for release by Harper Bros.

The cluster of stars  
on his collar never  
stopped the Old Man  
from learning some-  
thing from a guy with  
a rag in his hand.







# vital organs

## for America's 'round the world eagle!

*Lucky Lady II*—Air Force Boeing B-50—first plane to circle the globe non-stop—depended on 31 vital units created by AiResearch.

This highly specialized equipment was of three basic types: (1) *electrical*—for power applications and temperature sensing; (2) *pneumatic*—for cabin pressure regulating controls; and (3) *heat transfer*—for air and oil temperature control.

The ability of AiResearch engineers to design and likewise to manufacture and test equipment that will stand up under the toughest conditions is the reason the majority of high-altitude and jet type aircraft produced in the U. S. are AiResearch equipped.

• Whatever your field—AiResearch engineers—designers and manufacturers of rotors operating in excess of 100,000 rpm—invite your toughest problems involving high speed wheels. Specialized experience is also available in creating compact turbines and compressors; actuators with high speed rotors; air, gas and fluid heat exchangers; air pressure, temperature and other automatic controls.

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2. FLOATING CONTROL THERMOSTAT—senses temperature of engine oil and signals oil temperature regulating system. (4 units)
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4. CABIN PRESSURE REGULATOR—automatically controls cabin altitude according to setting by pilot. (1 unit)
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6. CABIN PRESSURE SELECTOR—automatically selects cabin altitude after presetting by pilot. (1 unit)
7. ACTUATOR—controls flow of intake air to engine. (4 units)
8. RATE-OF-CHANGE SELECTOR—controls rate of cabin altitude change as preset by pilot. (1 unit)
9. ENGINE OIL COOLER and THERMOSTATIC VALVE—control temperature of engine oil. (4 units each)

An inquiry on your company letterhead will receive prompt attention. AiResearch Manufacturing Company, Los Angeles 45, California



# Behind the Scenes

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Several months ago, we discussed on these pages one particular problem in the design and development of modern propeller blades — fatigue. It was a story of test, test and more test. Here, we would like to tell you a little of the creative design work that goes on behind the scenes at Hamilton Standard.

This work is quite different than testing, for we are not in the laboratories surrounded by complicated and intriguing machinery. We are at a desk with nothing more than a slide rule, pencils, formulas and charts. Our objective is the aerodynamic design of efficient propellers and the selection of the most suitable design for a given airplane installation. The "tool" used in achieving this objective is called "strip analysis".

Refinements in propeller blade design were of secondary importance in the past. Today, they have assumed major importance because of higher speeds, greater engine powers and increased loads. Now, even small improvements in propeller performance can produce large economic benefits to operators of modern aircraft. For example, in the case of an airplane whose take-off and climb performance is critical with a given load, a propulsive efficiency improvement of as little as 1% or 2% can increase the maximum permissible payload from 10% to as much as 50%.

In the past, propeller designs were based on data gathered from wind tunnel and flight tests. This was costly and time-consuming and rarely resulted in a design of maximum efficiency. Now, since small performance changes have come to mean so much, propeller designers must try to work to the last fraction of a percent in propeller efficiency. As a result, this new strip analysis method has been developed and refined by Hamilton Standard engineers to a point where the comparative accuracy is within plus or minus one-half of one percent. Such continuous design leadership and thorough research have contributed much to the progress of aviation.

On the opposite page are questions and answers which will give you some idea of this one phase in our interesting but complex work of designing, developing and producing Hamilton Standard propellers.



# at Hamilton Standard

## WHAT IS STRIP ANALYSIS ?



Strip analysis is comparatively simple — physically. It consists of selecting narrow cross-sections of a blade about every 10% of its length. The same vortex theory which forms the basis for airplane wing design is then applied to the study of each section of the blade. In both cases, the air forces acting on a series of spanwise sections are individually computed and then integrated to determine total forces. In other words, we can mathematically predict the exact performance of any given propeller on any specific airplane, even before it is built. Since this method involves the analysis of sections or strips of the blade, it is called strip analysis.

## HOW OLD IS STRIP ANALYSIS ?

- ☐ 5 Years?
- ☐ 10 Years?
- ☐ 15 Years?



This precise analytical method has been developed over the past 15 years and has been used by Hamilton Standard for more than ten years in designing new blades. However, computations by this method were laborious, time-consuming and expensive. Over the past five years, with the increasing requirements for blades of maximum efficiency, and with the accumulation of test data proving our calculations, there has been a growing requirement for a broader application of this method. Hamilton Standard undertook this task and, as a result, the strip analysis method has been streamlined so that the calculation of a complete performance analysis now takes only one-quarter of the time previously needed. This permits not only the improved design of new blades, but rapid and accurate evaluation of existing designs for specific airplane installations.

## 3% GREATER EFFICIENCY FROM A DC-6 BLADE ALLOWED HOW MUCH GREATER PAYLOAD ?

- ☐ 40 Pounds?
- ☐ 400 Pounds?
- ☐ 1,400 Pounds?



Some notable examples of the value of strip analysis occurred in connection with propellers on the Douglas DC-6 and the Boeing Stratocruiser. In the case of the DC-6, it was desired to increase the maximum permissible gross weight of the airplane. A slight re-design of the propeller blade by the strip analysis method gave promise of a 3% improvement in efficiency to meet the new requirement. Our calculations were confirmed during the airplane certification tests, and the plane was certificated for an increase of 1,400 pounds in gross weight. This could mean nearly 250 more gallons of gasoline or as many as seven extra passengers. Similarly, on the Stratocruiser, a predicted improvement in propeller performance due to a modification in design was confirmed by a substantial improvement in airplane performances during certification tests.

## WHICH BLADE IS BEST FOR TAKE-OFF AND CLIMB ?

- ☐ Narrow Blade?
- ☐ Wide Blade?
- ☐ Compromise?



It would be natural to suppose that a wide blade would increase the power capacity of the propeller and thus provide improved take-off and climb performance. Empirical data, such as has been used in the past, would support such a theory. But, here again, the value of strip analysis is being demonstrated. In certain cases, comparable power absorption can be achieved with a narrower blade designed with refined airfoil sections, yet retaining the same diameter. The resulting benefits are obtained through noticeable weight saving in the blade itself, and, due to lower stresses, in the shank and hub of the entire propeller. And every pound saved means better performance characteristics — range, climb, payload, altitude or speed. In cases where use of wide blades is still dictated by certain factors, the efficiency of these also may be increased by redesign through the strip analysis method.

# HAMILTON STANDARD

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION  
EAST HARTFORD, CONNECTICUT





# The WORLD IS THEIR

By Herbert H. Ringold

July, 1943: It was a hot month in the Mediterranean. Pozzallo, on the south coast of Sicily, surrendered July 11. Two days later British troops landed on Sicily proper. On July 19th the U. S. Air Force attacked Rome. Warning leaflets were dropped first, but Italian sources said 717 people were killed anyway. And then on July 25, King Victor Emmanuel of Italy announced that Benito had resigned. But even all this excitement had little effect on the sophisticates of ATC . . .

"Bet a dime."

"I see."

"Up a dime. Say, where's Klotz?"

"I fold. Klotz went to Russia yesterday."

"How about Dick Kight? There's my twenty."

"By me. Kight left for India this morning."

"I fold. Let's throw away this deck and get one with some aces in it. If these cards don't get any better, you guys will have to wait until I get to China again. The adjutant over there owes me forty-seven bucks. And it's about time that weather officer in Cairo came through with the six I loaned him."

"Come on, let's play poker. I need some dough myself. I got a date coming up with that British nurse in Karachi."

We were sitting around the poker table, with members of the 26th Transport Group of ATC's Domestic Transportation Division. This is a "special-mission" outfit, on call for any emergency—anywhere, any time. To these boys, flying to Moscow or Chungking or Melbourne is about as exciting as going to the nearest latrine.

The phonograph is playing "Coming in on a Wing and a Prayer."

"Say," says Captain Ralph Reed, "next time any of you guys get down to Natal, pick up a couple of my shirts. When I came back from Africa last time I was too damned tired to get them."

Reed explains to me why he didn't stop to get his shirts.

"There were 400,000 pounds of high-priority materiel piled up at Natal. Rommel was in El Alamein then and the Allies needed that stuff in a hurry. Our CO, Lieutenant Colonel Willis H. Proctor, was on hand to supervise the job. We had seven ships, and in thirty-six days we moved 388,339 pounds of

Illustrated by Capt. Raymond Creekmore



# Oyster

**The men of ATC's special mission outfit carried strange cargoes.**

**Anything from a load of dollar bills to 7000 pounds of mercury**

**fulminate. But take it from them it was as dull as Monday's wash**

equipment over to Africa. All of us made two round trips a week. Each plane had a double crew, and one crew would leave Natal at 1700 o'clock and get into the West African base in the middle of the afternoon. We would leave Africa that night and land back in Natal the next morning. The mechanics worked on the ship for five or six hours, and then the other crew went out. We got two good nights of sleep out of every five. Let's see, I think I left Natal on Wednesdays and Sundays."

Reed hastens to explain that it was all routine flying. Nothing to get excited about. Rather dull and monotonous. A job to do.

"Yeah," says Captain Vernon M. Byrne, "after you jump the ditch once, it gets sort of boring. The only real fun I've had was the time I took 100,000 one-dollar bills over to Africa so the ghost could walk on pay day."

Captain Joseph E. Kimm agrees with Byrne. "Nothing exciting happens to us. It's the boys in combat who are really doing the work. We just fly around."

"Flying around" to Kimm has meant pioneering the air route up to Alaska, making ten round trips across the ocean, and flying the first C-87 to India.

"The fellow who had some fun," Byrne continues, "was Captain Alexis Klotz. He's been around more than most of us, anyhow. I think he's in Russia right now. On one trip he carried 7000 pounds of mercury fulminate. If you sneeze twice that stuff will blow up. If I know Klotz he just set it down nice and careful-like, yawned, and made a routine report to operations. His flight plan called for four stops, but with that delicate load on board he made it in two."

You ask about the kind of cargo they usually carry and are told it is all critical materiel or high-ranking dignitaries. As a matter of fact, the 26th Transport

Group claims: "If we haven't flown you, you're not a big-shot statesman." Most of the time the men don't even know the kind of cargo they have in their ships.

Somebody walks over and starts playing "Wing and a Prayer" again. That reminds Reed of the time he was flying a C-87 to Africa. About an hour out of South America, he lost his gasoline cap and the gas started to siphon and leak into the cabin. They cut off the radio, for the slightest spark would have blown the ship to hell and gone. They just had to fly around praying until the gas got low enough. And they couldn't contact their base to announce that they were friendly.

What kind of weather do they find?

Byrne says, "Around Africa you'll find a lot of fronts, but they aren't much to worry about if you play it safe. Go around or underneath them and look for holes. The best thing to do is run parallel down the coast of Africa and hunt for a spot to get through. But don't try to tear into the fronts at medium altitudes or you'll get yourself a pretty rough ride."

"That's right," Reed adds. "Stay down around 1000 feet. You'll find that the turbulence is very much lighter. But be sure you are out at sea before you start letting down to 1000. Otherwise, you'll spread yourself all over an African mountain."

"All you have to do," Kimm says, "is listen to your briefing officers. You get briefed from station to station by experienced men who know their business. Everyone of them has flown your route, and they go out on periodic flights to check up. Just do what they say."

"Around Puerto Rico, the weather's different," says somebody whose name you don't get. "Down there, you'll find a lot of severe electrical storms. Keep out of the clouds, and you'll be all

right. It's a good idea to put your wheels down so you can handle the ship better. That slows you down and gives you more control."

Captain Reed gets up and says, "Let's go down to the enlisted men's quarters and talk to the men who know that kind of stuff." You walk down to a day room and run into Master Sergeants Wells E. Brown, Clyde W. Nowlin, and Leo J. Zulkowsky and Sergeant M. A. Greco.

Brown helped evacuate Java and flew in the last American plane out of the Philippines. Zulkowsky ran the first survey route of Greenland in a B-24. Greco has made nine round trips across the South Atlantic. Nowlin, a charter member of the old Ferrying Command, made the first ferrying hop to Russia and thirty-four other crossings over both oceans.

Their experiences? "Routine flights—nothing much ever happens." Nowlin does admit that when he landed after his first trip to Moscow, they put a yardstick into the gasoline tank to check their supply and it came out completely dry!

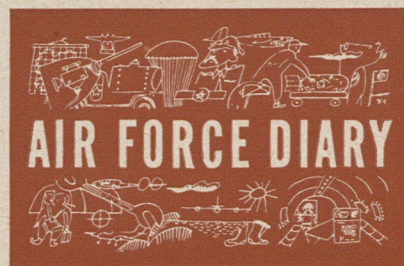
They talk about the fact that they never know where they're going until two hours before the ship takes off. "When we went on one trip," Greco recalls, "we were given maps for both Russia and Japan. Just before we left they told us we were going to Casablanca."

"Talking about Africa," says Nowlin, "if you have to make a forced landing there the bush will seem deserted, but there are few places you can land without being seen. Just wait a couple of hours and some natives will come to investigate. Be sure not to frighten them with display of firearms. While waiting, don't leave your ship. It's easier to find a plane than a man. If you burn the oil from your engines it will give out a heavy black smoke which is easy to see from above."

"And watch out for the Wogs around Africa," Greco adds. "The Wogs are African soldiers serving the Allies. They do sentry duty and they only understand two words of English—'stop' and 'go.' When they say 'stop,' freeze or you'll get a couple of feet of cold steel through you."

As you close the door on the enlisted men, one of them is saying, "Drive into town with you? Not the way you handle a car. It's too damn dangerous."

*From AIR FORCE DIARY, edited by James H. Straubel and published by Simon and Schuster, \$3.75. Copyright 1947, by Army Air Forces Aid Society.*





# Appointments to Civilian Components Board Announced Soon. EM Conspicuous by Absence

Committee Appointed by Secretary Johnson has Wide Purview

Names of the Reservists (Army, Navy and Air Force) appointed to Secretary of Defense Johnson's new Civilian Components Policy Board are expected to be announced within the next two or three weeks, according to Pentagon authorities.

The board, established late in May, was created by the Secretary to "develop overall policies, co-ordinate and maintain surveillance over the plans, policies and programs of the civilian components of the Armed Forces" including Army, Navy and Air Force—in short to remove the discrepancies that now exist in reserve regulations of the three separate services.

While awaiting the announcement of the board members, some reservists have expressed disappointment that according to the "Table of Organization" established by Johnson's office, the enlisted man will again go unrepresented. Each service will have six representatives on the board—all of them officers. This in spite of the fact that a good percentage of the reserve "problem" admittedly comes from inadequate consideration of enlisted personnel.

In support of, and in consonance with, strategic and logistic plans prepared by the Joint Chiefs of Staff, the Board shall be responsible, generally, for developing overall policies, plans, programs, and activities of the National Military Establishment relating to Civilian Components matters. Specifically, the Board shall have the following powers and duties:

- ▶ Develop policies and programs governing the organization, activation, training and equipping of the Civilian Components of the Armed Forces.
- ▶ Coordinate policies and programs concerning the assignment from the Joint Chiefs of Staff of missions and functions to the various Civilian Component organizations.
- ▶ Establish policies for administrative records, supply and equipment (non-operational).
- ▶ Establish policies governing the size, composition, mission and type of units, insofar as the geographical location of those units, in the various communities based upon information, if available, furnished by the National Security Resources Board and the Munitions Board as to the availability of manpower for the Civilian Components in those communities.
- ▶ Review and coordinate policies and regulations having to do with the Civilian Components of all Services.
- ▶ Pursuant to the plans promulgated by the Joint Chiefs of Staff and by the Munitions Board, establish and monitor policies and programs of the Armed Forces regarding the location, size and type of training facilities for Civilian

Components to be constricted or otherwise procured.

▶ Review the budget estimates of the military services for Civilian Components activities and make appropriate recommendations thereon to the Secretary of Defense.

▶ Submit recommendations to the Secretary of Defense on all new legislation affecting all Civilian Components.

## 40,000 Nat. Air Guardsmen into two week summer session

Air National Guard units have begun the most extensive field training maneuvers in the organization's history, according to announcement by Maj. Gen. Kenneth F. Cramer, Chief of the Bureau. An estimated 40,000 officers and airmen in 494 federally recognized units from all the States and Territories will participate.

Since June 11, and extending to August 21, Air Guard units will move to some 20 state and federal air bases located throughout the United States, Hawaii, and Puerto Rico for a minimum of two weeks summer training.

Field training this year will be almost completely on a wing basis. Where a wing covers several States, all its component units will train at the same time and place wherever practicable. (Last year's field training of the Air National Guard was almost exclusively on a squadron basis, at about 40 training sites.)

Since reorganization of the National Guard began in June, 1946, the Air Guard has grown to an approximate strength of 41,000 officers and men. Organization has been completed for 12 light bombardment squadrons, 70 of the 72 fighter squadrons, 11 of the 12 aircraft control and warning group headquarters and 11 of the 12 aircraft control squadrons, 22 of the 24 aircraft control and warning squadrons, and their supporting units. By the end of the current fiscal year on June 30, the Air Guard is expected to complete organization of its 514 units. The 1949 fiscal year strength ceiling of the Air National Guard is 45,512.

Air Guard pilots will fly a minimum of 30 hours during the field training period. They will fly jet-propelled F-80 Shooting Stars, F-47 Thunderbolts, F-51 Mustangs, B-26 Invaders and C-47 Transports. More than 3,000 Air Guard pilots will be supported by thousands of ground and flying specialists in the enlisted ranks, including over 5,600 Air Technicians and graduates of Regular Air Force and Army Service schools.

Like the 285,000 Army Guardsmen going to camp this summer, the Air

Guard will make the movement to field training under regular mobilization conditions by rail, truck, and plane. Part of the equipment and some of the personnel will fly to camp in the C-47 transports. The Air Guard units will be accompanied to camp by their permanently assigned Regular Air Force instructors.

Operational Readiness Tests will be given to determine combat efficiency of Air Guard squadrons. These ORTs, the same as those given the Regular Air Force, involve three-day exercises to determine the manner in which a unit can perform operationally with assigned personnel and equipment under conditions which simulate combat.

Air Guard training this year will cross State boundaries under special agreement between the States and the Air Force. This provides that all Air Guard commanders, from group level up, may exercise training supervision over subordinate units and personnel in all matters related to training for their Federal mission, regardless of State boundaries.

Pilots of the Air Guard flew a total of 276,693 hours during 1948—a 221 per cent gain over the previous year.

## Vets risking NSLI protection

A sampling of 170,000 National Service Life Insurance accounts in four northwestern states has disclosed that more than one third of veteran policyholders (at least in that area) are running the risk of losing their insurance through late premium payments. The survey was conducted by the Veterans Administration in Washington, Oregon, Idaho and Montana.

Thirty-seven percent of the veterans in that area were paying their insurance during the 31 days "grace period" allowed before accounts lapse. A third of these waited until the last 14 days of the grace period before sending in their little yellow envelopes.

Actually, according to the survey, five percent waited until after their insurance had lapsed before paying the premium due.

In urging veterans to guard against such delinquency, the Veterans Administration pointed out that once a policy lapses a veteran may reinstate only by meeting health requirements and paying two monthly premiums.





## USAF Adds 17 New Schools to List Giving Air-ROTC Courses

The Air Force has announced Air-ROTC courses in 17 more universities, beginning with the Fall term bringing the total to 127 in the 48 states and Hawaii. Seven types of training, depending on the type school, will be given. They include armament, communications, aircraft maintenance, engineering, comptrollership, general administration, and transportation. Freshmen at the schools who elect to take the air course will first be enrolled in the two year basic course taken by both ground and air students. They will begin air training as Juniors.

The 17 new Air-ROTC schools include the following: Stevens Institute of Technology, Hoboken, N. J.; Newark College of Engineering, Newark, N. J.; Union College, Schenectady, New York; Montana School of Mines, Butte, Montana; Rensselaer Polytechnic Institute, Troy, N. Y.; Univ. of Louisville, Louisville, Ky.; Miami Union University, Oxford, Ohio; Ohio Wesleyan University, Delaware, Ohio; University of Detroit, Detroit, Mich.; Louisiana Polytechnic Institute, Ruston, La.; University of New Mexico, Albuquerque, N. M.; University of Tulsa, Tulsa, Okla.; East Texas State Teachers College, Commerce, Texas; Florida State University, Tallahassee, Fla.; Duke University, Durham, N. C.; University of South Carolina, Columbia, S. C.; University of Hawaii, Honolulu, T. H.

### Reserve Flight Pay

Although official announcement was still pending as this issue of AIR FORCE went to press, it was considered highly probable that within a matter of days the Pentagon would verify the report that qualified officers and enlisted men of the AF Reserve would receive flying pay for time spent in regularly scheduled training periods. It was understood announcement was being withheld until certain details involving amount to be paid and what constituted qualification were ironed out.

## Johnson Urges US Employers to Be Generous in Training Leave

Declaring that the cooperation of American employers was "fundamental to our national defense," Secretary of Defense Louis Johnson has issued a strong appeal for employers to grant special leaves of absence to reserve members to enable them to take part in two-week periods of summer training. The statement said in part: "In order to allow reserve members of the Armed Forces and members of the National Guard to participate in short

annual periods of training with military pay, I urge all who employ Army, Navy, Air Force, Marine or Coast Guard reserve personnel, or National Guard or Air National Guard personnel, to adopt a liberal policy in granting special leaves of absence for this most necessary and vital purpose.

"National Guard and Reserve units played a major part in the last war. Their importance today is even greater. These forces now number 2,560,000. Last year 450,000 reservists trained with their organized units. This year it is expected 630,000 will engage in such training.

"I cannot emphasize too strongly the

need for favorable action on the part of all employers on requests by their employees for leave of absence to participate in annual training in the Armed Forces reserves. The strength, skill, and teamwork of our Armed Forces reserves depend upon participation in this training activity.

"Your cooperation as an employer in adopting a policy favoring the granting of requests of reservists desiring leave of absence to engage in reserve training is fundamental to our national defense. In this way you can help to maintain the organized, well-trained, enthusiastic military reserve force so vital to the security of our country."

## BUT WHERE'S THE FLOAT?



The Long Beach (Cal.) AFRTC won first prize last month in a local Centennial Parade with a float titled "100 Years in Aviation." It was manned by Wilbur Bernhardt, Nette Jean Stauch and Florian Berger. Where's the float? Who cares?





This is what mid-Manhattan looked like to Col. Goddard and his crew from 3000 feet. The streaks are light reflections, but as Goddard points out, an enemy city would be blacked out, so even this defect would be eliminated. Below, photographer in Empire State tower tracks flight of Goddard's ship with time exposure which catches four-second flash bursts.





# No Place to Hide

(Picture Version)

**T**wenty-four years ago an old Martin biplane bomber droned through the night sky over Rochester, New York. The city below was asleep. The pilot of the bomber pressed a trigger on the stick. An eighty-pound, fourteen foot bomb slipped from its rack beneath the fuselage.

Seconds later it exploded in mid-air. The earth shook. Windows blew out. Dishes fell off their shelves. The sky lit up with a brilliance of the sun. People below ran from their houses screaming that the world was coming to an end.

The pilot was a young Air Corps lieutenant by the name of George Goddard. The bomb was a photoflash. Simultaneously with the explosion, Goddard clicked the shutter on a Fulmer-Graflex K-1 aerial camera and Rochester posed for its picture—the first night photograph ever made from an airplane.

The result was the photograph made from 3,000 feet over Rochester, November 24, 1925—almost a quarter of a century ago. Blurred and not too accurate in detail, it was, nevertheless, the beginning of the Air Force's efforts to turn night into day.

Ever since, the Aerial Photographic Laboratory at Wright Field now under the direction of Colonel Goddard has been experimenting to perfect night aerial photography.

Last month, a B-17, using the latest technique, flew over Rochester at the same time of day and at the same altitude and made virtually the same picture. The experts contend it is as good as they can get with a daylight mission. On the same mission, the crew also photographed New York City obtaining some of the most startling photographs ever taken of the world's largest city.

The 1949 pictures were not taken with an eighty-pound "long Tom" bomb which burst in mid-air and floated to earth on a parachute. There was no panic. No windows popped out of their frames. No frightening explosion.

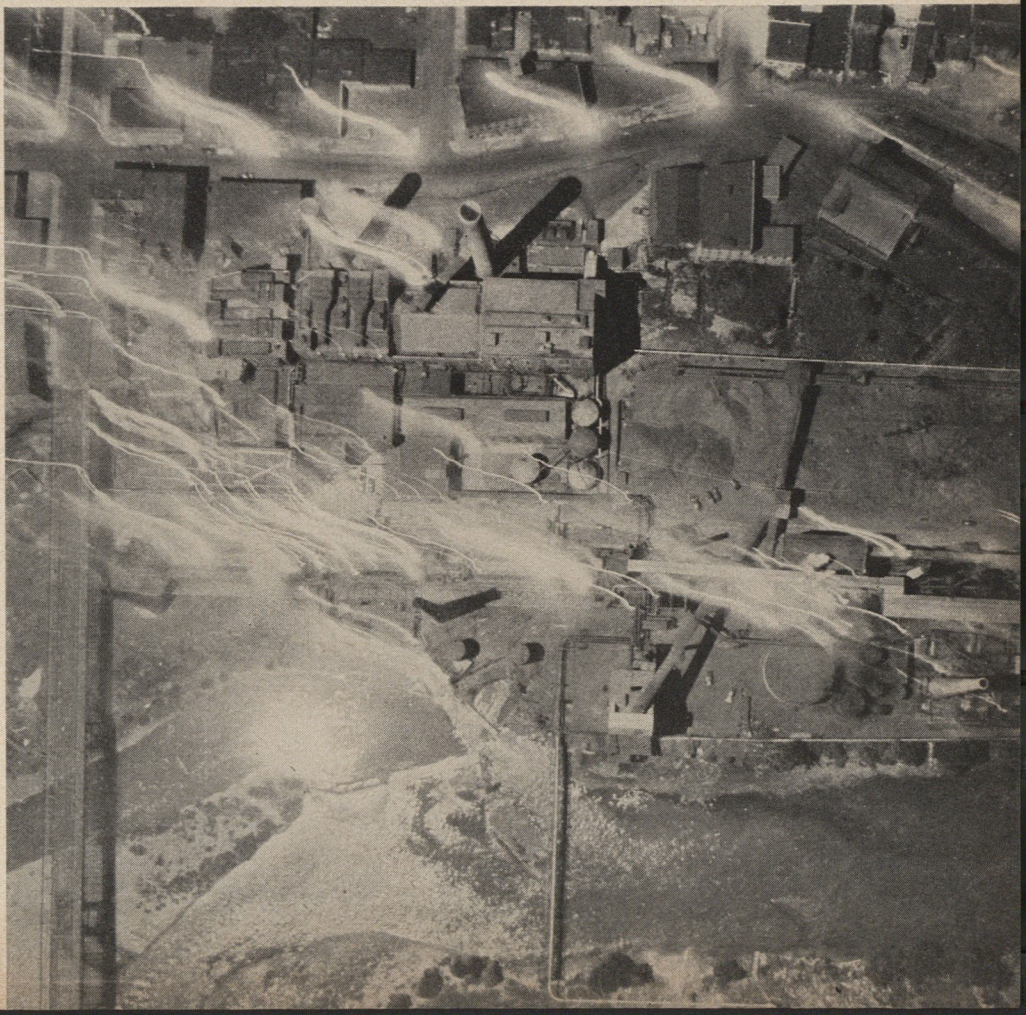
Small powder cartridges did the job. They were fired from a projector in the bomber like you might fire a machine gun. Poof! They exploded in mid-air producing 50,000,000 candlepower light, illuminating with daylight an area of several square miles. And at the height of the flash—its peak of brilliance—a photo electric cell in the improved K-24 aerial camera clicked the shutter to take the picture automatically.

The bomber, piloted by Lieutenant Colonel Albert Wallace, Jr. of Wright Field and the camera operated by

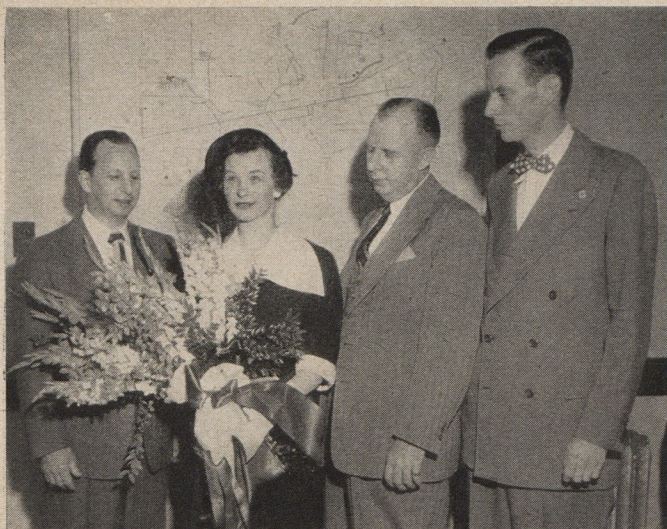
(Continued on page 44)



The picture above is the world's first aerial shot taken at night. The place was Rochester, New York. The altitude was 3000 feet. The date was 1925. The picture below was taken by the same man at nearly the identical spot, nearly the same time of day, and at the same altitude—only it was 24 years later.







Viola Dunton was named queen of meet. From left, Dr. J. H. Meyer, AFA Sqdn. Commander, Miss Dunton, Russell McClure, City Mgr., Frank Sutton, Chamber of Commerce.



Attraction of the show was an aerobatic exhibit staged by Fred Tietzel (above) of Columbus, Ohio. Competition was won by Major Scott Royce who amassed a total of 1200 points.

# DAYTON AFAers HOLD GLIDER MEET

Home of powered aircraft gets glimpse of fliers who operate with nothing but stray thermals

To the citizens of Dayton, Ohio, and the Greater Miami Valley, the sight and sound of military and civilian aircraft is a commonplace occurrence. But these same air-minded individuals were given an unusual aviation treat over Memorial weekend, when the Dayton Squadron No. 1, AFA sponsored the largest glider contest ever held in that vicinity.

The sailplane competition attracted a field of thirteen contestants from Ohio and Indiana who participated in a program of glider maneuvers under near-ideal weather conditions. And after three days of dawn-'til-dusk soaring and intricate glider specialties, the hometown boys managed to carry off the top honors.

The contest was named the "Wright Memorial Glider Meet" in honor of the aeronautical pioneers, Wilbur and Orville Wright. Officially sanctioned by the Soaring Society of America, the meet became an all-out co-operative effort involving the Soaring Society, Dayton Chamber of Commerce, CAP, Ohio Air National Guard, Wright-Patterson Air Force Base, Miami Valley Flying Service and the Dayton Squadron, AFA.

This was the first major activity conducted by the relatively new Dayton AFA group, and, in the short planning and preparatory period, assistance was received from many sides. A boost to the glider activities was given by Mayor Louis W. Lohrey, of Dayton, when he proclaimed the week of May 22 as Air Force Association Week for the city.

Many Dayton mercantile establishments donated trophies, loving cups, merchandise and certificates. Several aircraft manufacturers added small models. These were awarded to the winners of each event and the grand champion.

The Squadron's aviation week-end was opened on a social note with the first AFA May Ball held Friday evening, May 27. Glamour was present in the form of Queen Viola Dunton, who was selected as Miss AFA of the Dayton Squadron No. 1, to reign over the Meet and preside at the first dance.

The schedule of glider events included altitude and endurance competition, bomb dropping, spot landing, paper strafing and a special speed dash. In the bomb dropping event, each pilot dropped three two-pound lime-filled bags at a dummy target on the ground from an altitude of 2500 feet; in the spot landing event, each pilot had to land and roll to a stop, without brakes, as close as possible to a marker in the center of the runway; in paper strafing, each pilot released a tissue streamer at an altitude of 2500 feet and then cut it with the wing of the glider, circle, and cut the streamer again, all to be accomplished in the least amount of time. In each of the events, winners were determined by averaging the two best attempts in each event. Points were given on a 500-300-200-100 basis for the first four places.

Major Scott Royce, of Dayton, captured the championship crown, amassing a total of 1200 points. He took first place in the altitude event with a peak of height of 4800 feet, second in the paper strafing event with an average of 23.65 seconds, fourth in spot landing with 52 feet, five inches average, and second in endurance, remaining aloft five hours, 26 minutes.

In second place with 1000 points was Paul Bikle, Dayton, who took first place in the bomb dropping event with a 69 foot average, and first in the paper

strafing with 18 seconds. Major Floyd Sweet, also of Dayton, was third, netting 800 points with first place in spot landing, averaging twelve feet, two inches, a third in paper strafing with a time average of 25 seconds and a fourth in bombing dropping, averaging 192 feet.

Captain William Elliott, Dayton, won the endurance contest, soaring for six hours, twenty minutes. He finished in a tie for fourth place by placing third in the altitude competition with a mark of 3600 feet. The fourth place deadlock was shared with Lt. Col. Lawrence Ely, who placed second in altitude at 3900 feet, second in spot landing with a 29 foot average and fourth in endurance with a time of three hours, 24 minutes.

After the completion of the Meet, Dr. Jerome H. Meyer, Squadron Commander, announced that it was the intention of the local AFA group to make the event an annual one for the city of Dayton. Participants endorsed the idea and promised to return next year.





## ARIZONA

**Phoenix:** "Operation Vittles," the Air Force film story of the Berlin Airlift, has been shown to 2,000 people in the Phoenix area under the sponsorship of the Phoenix Squadron. Twenty-one civic organizations, twelve social groups and seven other organizations made up the audience. The film, which was loaned to the Squadron by Williams Air Force Base, will be available indefinitely and another 2,000 persons are expected to see it. The public information committee is made up of Bob Cowie, Mel Goodson and Hal Wesley. Special goodwill flying trips are planned to squadrons in adjoining states to show "Operation Vittles."

## CALIFORNIA

**San Gabriel:** The first Air Scouts to be started in the East Los Angeles area will be sponsored by the San Gabriel Squadron. I. L. McElliott, Squadron Commander, announced recently. The Squadron plans to give the Scouts instruction in flying problems, navigation, engine work and assembly.

**Redondo Beach:** June Lockhart, "AFA Sweetheart," was the honored guest of the South Bay Squadron at the May meeting held recently in the community's American Legion clubhouse. Temporary officers elected are Glen T. Noyes, commander; James J. O'Hearn, deputy commander; William Bostick, secretary, and Robert Sheward, treasurer. Mr. O'Hearn, a member of the North American Aviation Corporation, explained the workings of the Finletter Commission and of its recent report in *AIR FORCE Magazine*.

## MASSACHUSETTS

**Worcester:** Kimball R. Woodbury, 15 Kimball street, was named commander of the Worcester Squadron No. 1 at a special meeting held recently. Other officers of the Squadron are: vice commander, Thomas Stebbins; recording secretary, Richard T. Benson; corresponding secretary, Edward V. Riley; treasurer, Richard Perkins. Councilmen selected are: Robert C. Mee, George I. Alberts and Harold R. Fife.

"Operation Wing Ding" was shown in the Memorial Auditorium on May 23 to approximately 600 people. A second feature, a "March of Time" depicting the necessity for a 70-group Air Force, was presented. Prior to the showing there was an informal banquet at a local hotel, and after the show members and guests attended a housewarming at the Squadron's new quarters in the Providence Street School.

## NEW JERSEY

A library composed of books on aeronautical subjects has been started by the Montclair-Essex Squadron of the New Jersey Wing. Vice Commander J. D. Lawrence has been appointed librarian. A Squadron bulletin board has been installed, and news pertaining to air power and AFA will be posed.

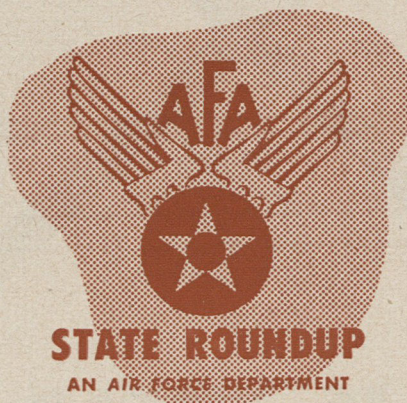
## NEW YORK

**Buffalo:** Robert E. Davidson was re-

elected commander of the AFA Buffalo Squadron at a recent meeting. Other officers named are: vice commander, Richard L. Duroure; secretary, Carlton E. Proctor; treasurer, Herbert B. Forbes; recording secretary, George B. Quinlan; historian, Richard H. Jeffries and squadron council, Donald L. Voltz, Francis R. Glatz and Frank J. Carriero. Commander Davidson appointed Larry Lambrecht to fill a vacancy.

## OHIO

**Columbus:** Colonel Benjamin O. Davis, commanding officer of Lockbourne Air Force Base and his public information officer, Lt. Francis B. Collier, were honored guests of the Columbus Squadron, AFA, at a meeting on June 7 in the Army-Navy Club. Following the business meeting, Ferd W. Pickens, Ohio Wing Commander and a member of the Columbus Squadron, presented the guests with certificates citing the



outstanding services both have rendered the Columbus Squadron. In accepting the citation Colonel Davis said, "It is you people, no longer active members of the Air Force but still doing so much for the Air Force, who should be thanked and recognized for your services."

## PENNSYLVANIA

**Altoona:** A number of bids from nationally known aerial stunt fliers eager to bring "package" air exhibitions to Altoona for the Centennial air show at the Blair county airport August 13 and 14,

have been received by Blair County Squadron of the AFA, sponsors of the show.

## TEXAS

**Dallas:** The most fascinating half-day-full of activity ever offered Dallas AFAers was unreel on Saturday, June 11, when the Squadron moved into Carswell Air Force Base, Ft. Worth, as official guests of Maj. Gen. Roger Ramey, commander of the famed 8th Air Force. "Operation B-36" began with a gathering at the base theater where members met the men who fly the world's greatest bomber and heard from their lips how it feels to maneuver the big plane at high speeds. Details of crew training was related and an inspection was made of classrooms, aircraft and the hangar line. Members clambered through a B-36 and watched them land and take-off at close range. A tour of the nearby Consolidated Vultee plant was made.

Colonel John Denny, commanding officer of Hensley Air Force Base, has announced that this year, as in the two previous years, his base will send a C-47 to the AFA National Convention and return, for the purpose of transporting delegates from Dallas.

## VIRGINIA

**Martinsville:** A model aircraft contest sponsored by the Patrick-Henry Squadron of the AFA was one of the highlights of the Henry County exposition held last month. The models were built by local boys and judged by three Regular Air Force Pilots. Charles Vass, 104 Moss street, won first prize, a gasoline model engine, in the Junior Class. Frank Vass won first prize, a model gasoline engine and a subscription to *Air Force Magazine*, in the Senior Class.

## WEST VIRGINIA

**Wheeling:** Twenty-five former members of the USAF met in Wheeling on June 1 to form the Wheeling Squadron No. 1 of the Air Force Association. Robert L. Upton was elected commander. Other officers are Reed B. Butler, vice commander, and Charles C. Schoenian, secretary and treasurer. Council members elected are Reed J. Hallock, Jack O. Hess and Jack M. Cornish.



Joe E. Brown gets commission of Honorary Commander for Life of Toledo Sqdn. of AFA. From left, Ferd Pickens, Ohio Wing Commander, Larry Hastings, Brown Ted Bacho, General William D. Olds, and Gus Duda, Toledo Sqdn. Commander.





## "X" IS THEIR WORK SHOP

**RIGHT**—Propelled by an engine without moving parts, tracked by radar, piloted by remote control, Martin Gorgon IVs (built for Navy propulsion research) have made the longest flights ever achieved by pilotless aircraft powered with ram-jet engines.

**LEFT**—Viking rockets, another product of Navy-Martin teamwork, will soon go up in the vicinity of 200 miles into the ionosphere and telemeter invaluable information back to the ground for future research. These amazing rockets will go many miles beyond the V-2, reach a maximum speed of 8,000 ft. per second.

Exploring the unknown . . . in rocketry, pilotless aircraft and guided missiles . . . is the important job of an able group of mathematicians, physicists, electronic, metallurgical and aeronautical engineers at The Glenn L. Martin Company. Revolutionary concepts of electronic guidance, instrumentation and navigation . . . delicate servo-mechanisms . . . spectacular power plants and powerful new fuels . . . are their breath-taking tools.

In an age when control of the air is vital to national security, Martin research once again leads the way . . . with the greatest advances on the most varied combination of top-level projects yet undertaken . . . in this dramatic new phase of flight. THE GLENN L. MARTIN COMPANY, BALTIMORE 3, MARYLAND.

# Martin

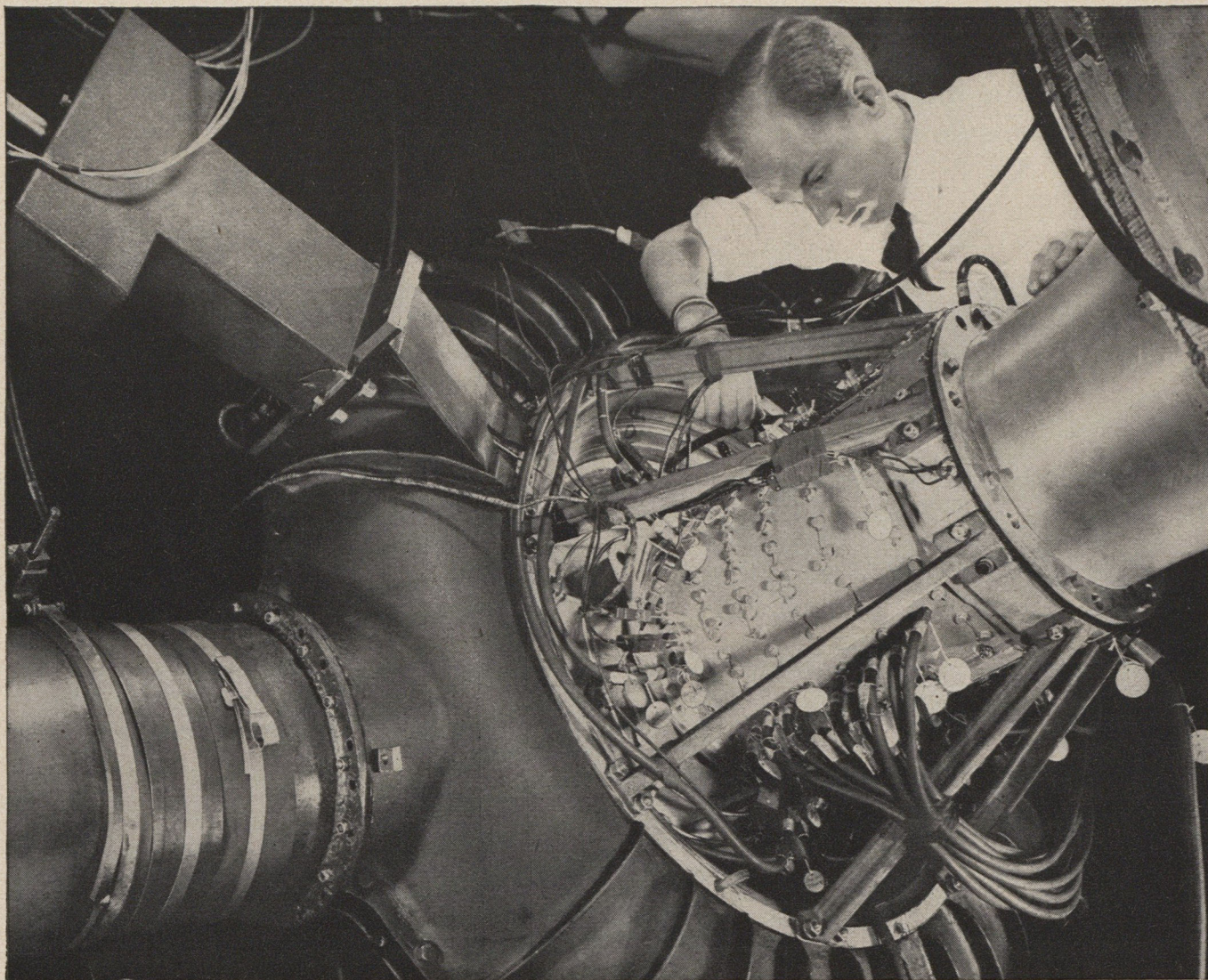
## AIRCRAFT

Builders of Dependable



Aircraft Since 1909





## GIVING AIR THE NEEDLE

► This research engineer is literally "probing" the inside of an Axial Flow Compressor...for data that will enable Wright Aeronautical to design better compressor blades *today* for *tomorrow's* jet engines.

► Bristling porcupine fashion from the compressor on test are the sensitive probes. Inside each probe are four tiny hypodermic needles that measure the velocity, pitch and yaw angles of the air flow. These various measurements are taken *axially* along the length of the compressor, *radially* from the bases to the tips

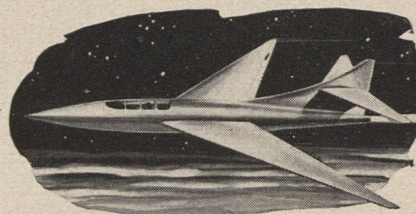
of the blades and *circumferentially* around the casing.

► From this data the Wright engineer determines the angle of attack, correct twist and airfoil contour of the blades in each stage of compression. Result? Improvement in compressor design to provide a considerable increase in the over-all efficiency and power output of new engines.

► Just as this research points toward better compressors, so the actual research technique involved results in greater laboratory efficiency. Many man hours and dollars are saved and

far more accurate data is obtained.

► This investigation of every slight detail of compressor blade performance is typical of the aerodynamical research at Wright Aeronautical to produce better power plants for better aircraft today and in the future.



POWER FOR AIR PROGRESS

# WRIGHT

Aeronautical Corporation • Wood-Ridge, New Jersey

A DIVISION OF  
CURTISS & WRIGHT  
FIRST IN FLIGHT

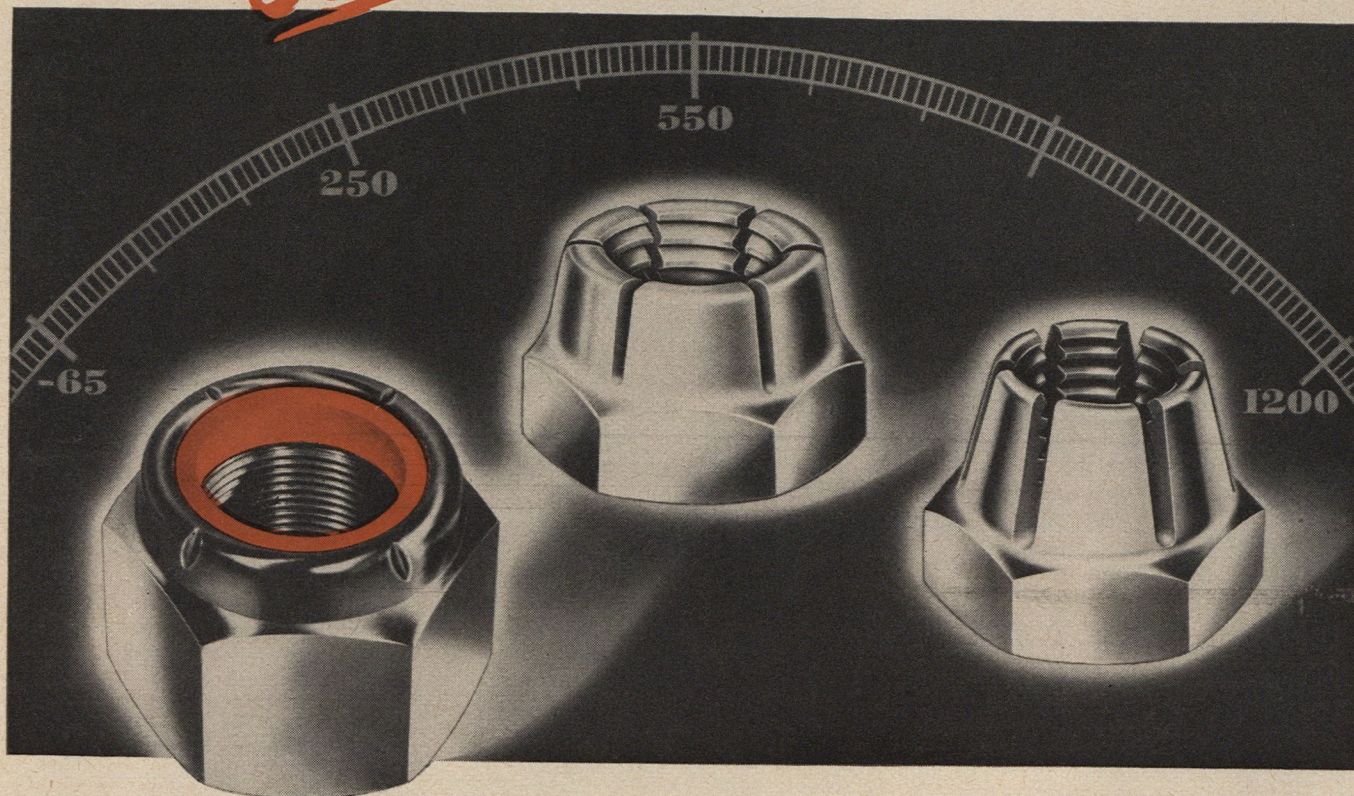


# NOW!

ESNA spans the temperature field

**-65°F to +1200°F**

with **SELF-LOCKING ELASTIC STOP NUTS**



—famous Elastic Stop Nuts protect  
permanently against **VIBRATION! IMPACT!**

With the addition of the new Z-550 and Z-1200 series, ESNA now has a specific nut design for all temperatures ranging from minus 65° F. to plus 1200° F. Self-locking, in both fully seated and positioned settings, these fasteners provide permanent protection against *vibration, impact and stress reversal*.

The two new nut designs represent the most efficient solution found by ESNA engineers after detailed research and production line studies of fastening problems encountered under elevated temperatures. Both fully meet ESNA standards for controlled quality and full interchangeability on class 3 bolts with minimum torque scatter. This controlled torque which is a feature of all ESNA nuts assures uniform bolt loading and permits more compact design, with resulting weight reduction. It also simplifies maintenance problems and speeds up field replacements.

Specifically, for applications between -65° F. and +250° F., the nut with the famous red fiber collar offers unequalled protection against vibration, thread corrosion and liquid seepage. The ZM and ZE nuts are designed for sustained temperatures up to 550° and the Z-1200 series has been engineered to withstand multiple cycles of exposure to extreme temperatures up to 1200° F. without seizure. Like all Elastic Stop Nuts, these fasteners are readily removed—do not damage threads or gall the finish—and they can be reused.

**HERE'S A CHALLENGE:** Send us complete details of your toughest bolted trouble spot. We'll supply test nuts—FREE, in experimental quantities. Or, if you want further information, write for literature. Elastic Stop Nut Corporation of America, Union, N. J. Representatives and Agents are located in many principal cities.



## ELASTIC STOP NUTS



HIGH  
TENSILE



ANCHOR



WING



SPLINE



CLINCH



GANG  
CHANNEL



NYLON  
CAP

OVER 450 TYPES AND SIZES IMMEDIATELY AVAILABLE FROM STOCK



# AMC Engineers Introduce New Flush-Mounted Radio Antennas For Use on High-speed Planes

**Antennas have many advantages including zero-drag feature**

Radio antennas are getting "under the skin" of the Air Force's sleek new jet fighters and bombers according to Air Materiel Command engineers who have just announced the development of flush-mounted radio antennas. The development of these new radio aides, which more technically are called "zero-drag antennas," was made necessary by the fact that high-speed aircraft could not tolerate protruding parts in the air-streams of near 1,000-mile-an-hour force. Streamlined cocoons or variously shaped tear-drop housings which were once quite adequate at one time, were no longer good enough.

New antenna types include the "Pic Axe" which rides inside the aircraft tail protected by a plastic radome. Shaped to follow the conventional rudder lines it draws its name from resemblance to the familiar pick axe.

Then there is the "Slot Type" which basically is merely a thin metal strip that can be flush with the skin. Others are of varying shapes to fit actual structural members. All are covered with special dielectric material.

The new antennas have greatly increased a plane's surface smoothness. On a 600-mile-an-hour design, for example, a single streamlined one-foot antenna of the old stub type, protruding from the fuselage expended—at 600 miles per hour—more than 200 horsepower. With the flush mounted type antennas the expenditure because of excessive drag forces is eliminated entirely.

Other advantages include the elimination of icing dangers, added protection from precipitation static, the sealing out of moisture and freedom from fear that external antennas will be broken off at high speeds.

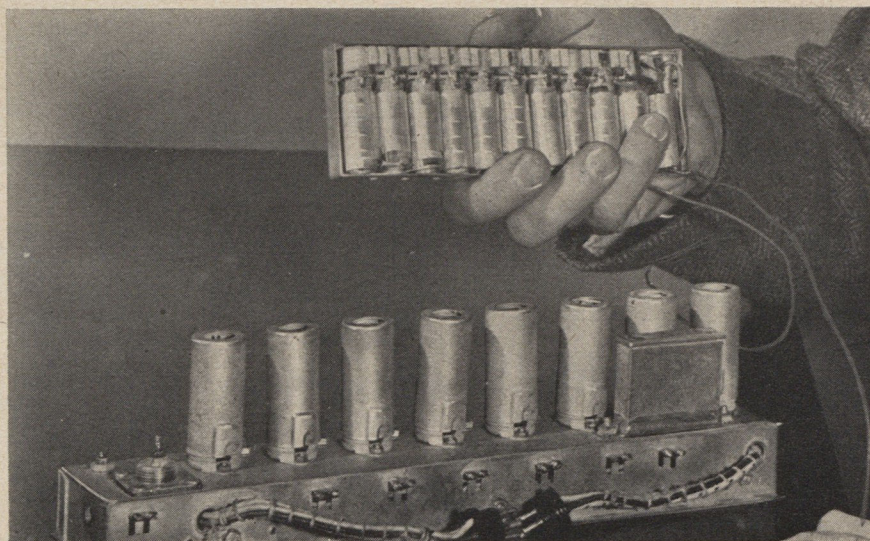
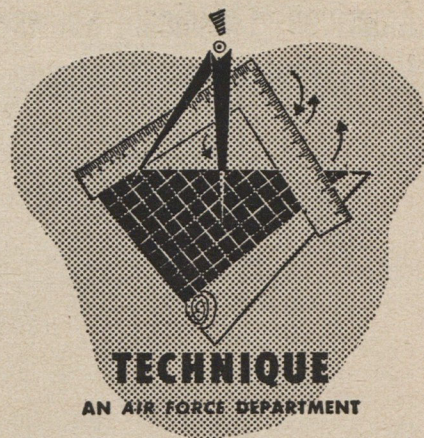
One of the latest developments in the new field of zero-drag antennas is the use of all of the fuselage as an antenna. This technique has become necessary because of the use of low radio frequencies which need antennas sometimes as large as the aircraft they serve.

A solution was arrived at by isolating a small portion of the plane—for example a wing tip—and then feeding voltage across the plastic-covered isolated section thereby "exciting" the entire wing. Using the same principle in an isolated tail cap, the fuselage can be energized to act as an antenna.

One Air Materiel Command C-54 aircraft has been outfitted with 15 drag-less antennas of all types—three in the nose, two in the wings, four in the tail, two in the dorsal fin and four in the fuselage. The antennas are for marker beacons, Command VHF set, IFF equip-

ment, VHF homing device, LORAN, radio compass, long range communications set, radio altimeter.

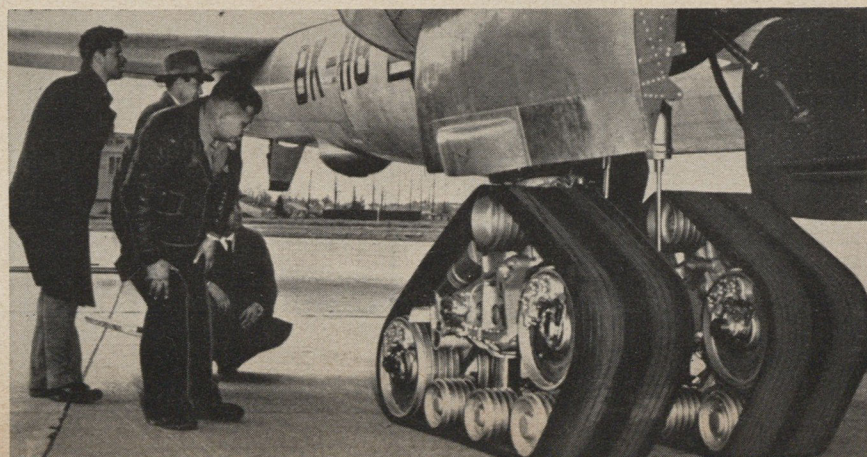
So far the Air Force has made no announcement as to general adoption of the revolutionary new device.



Compactness of new radar unit is shown in comparison with old miniature unit. See "Are Fighters Obsolete?" (page 17) for importance of miniaturization tests.



Needle-like boom (above) is installed in nose of Northrop XF-89 to pick up dope on speed, altitude and yawing action in the calm of the air ahead of the plane. And now it's track-tread landing gear for the massive B-50 Superfort. The picture below was taken during the 164,000 pound plane's first taxi runs.





## American Chemical Shows New Protective Aluminum

A new chemical, developed by the American Chemical Paint Company, is said to provide a faster, more economical coating for aluminum than heretofore possible. Known as "Alodine," the substance can be applied to aluminum parts, including aircraft, by dipping, spraying, or even brushing, thereby offering greater latitude than either chemical oxidation or anodic oxidation. "Alodizing" is said to be incredibly rapid. In an immersion process, aluminum parts are effectively treated in tanks in less than 2 minutes. In a spray process the aluminum is Alodized in 30 seconds or less. Treatment time required for brush Alodizing is no longer than it takes to apply the chemicals and wash the surface with water. American Chemical reports the new substance meets service specifications and that on the whole Alodized aluminum compares favorably with anodically oxidized (Chromic acid) aluminum without paint; while with the added protection of a paint finish, the Alodized metal is usually superior.

## Fly-Fone Gets CAA Okay

Fly-Fone, the smallest radio set ever developed for standard aircraft use, has passed CAA tests and received an Approved Type Certificate, permitting its use by commercial airline pilots. Fly-Fone is only as big as a nickel and fits snugly into one ear. It weighs about half an ounce and is connected to the receiver jack by a detachable wire, permitting the pilot to disconnect the set and move about. Fly-Fone is reported twelve times as sensitive as the conventional headphone. It works on minimum volume, reducing static and mechanical interference.



Fly-Fone resembles hearing aid; is twelve times efficient as old sets.

# TECH TALK By Douglas J. Ingells

The Navy still doesn't believe that the Air Force has flying battleships. Or do they? The other day, one of our big B-36's flew over a Navy test range somewhere in the southwest and got into some chatter-chatter with the tower operator. It went like this: "Hello, tower, hello, this is Army B-36, requesting permission drop 72, 1,000-pound bombs on your range. Bad weather ahead makes it desirable to unload dummy bombload." "Tower to Army B-36: How many B-36's are you? How many bombs did you say?" "One B-36, o-n-e, Bombardment type aircraft, 72, seventy-two, one thousand pounders; emphasis seven-two, one-zero-zero-zero pound bombs; can we drop the lot of them?" "Hell, yes; what are you guys flying, battleships?"

Here are some interesting figures released recently by Northrop regarding his Flying Wing aircraft: "If the Wright Brothers' airplane were enlarged to the size of a modern four-engined transport of 100,000 pounds, it would take 370,000 horsepower to force it through the air at present 600-mile-an-hour speeds. Even a fairly clean transport of today would need 52,000 horsepower to get such performance in speed. But a transport with 600-mph speeds is in sight in the near future with the cleanest type of Flying Wings. And to drive this 100,000-pound version of the Flying Wing at this speed will require only 13,000 horsepower, putting it well within the reach of existing power plants."

That man Bill Lear, whose radio equipment has performed miracles for aircraft, is at it again. This time with a new lightweight VHF receiver and transmitter for light aircraft that can be installed for as little as \$400. To go with it are Lear accessories—at added costs—which make the installation an automatic radio navigation system. All the operator has to do is tune in a desired station and a "scope indicator" gives the exact compass course to the omnirange station selected, regardless of the heading of the airplane at that moment. It's one of several VHF bantam-weights being introduced as part of the CAA's call for new designs of airborne equipment at a reasonable price for private flying.

Out at Muroc, California, the U. S. Coast and Geodetic Survey has completed surveys on the Rosamond Lake site and actual construction is underway for a more advanced all-altitude, super, super speed course for aircraft. Latest estimates claim it will be ready for trials sometime in 1950. The course, which will have various methods and measuring techniques for determining the speed of new aircraft designs is being built to permit accuracy of measurement down to one-half of one per cent. When it is ready, the Air Force may ask officials of the Federation Aeronautique Internationale—who must make every world's record official—to adopt its new method of recording and testing.

The Boeing Company recently released some interesting figures in a report by R. B. Harlon which gives you an idea that flying a B-29 isn't just riding a dreamboat. The report said it takes a co-pilot 116 separate operations during the course of a normal landing. He must perform the 116 functions in approximately 305 seconds or make one motion every 2.6 seconds. During the downwind phase of the approach he moves faster—one motion every 1.8 seconds. It's a good argument for the automatic flight advocates. They claim they can cut down on the necessary motions by better than 100 percent.

Report from Sweden: A Swedish jet fighter, the SAAB, Svenska Aeroplan Aktiebolaget design, J21R, becomes the only aircraft design in the world—so far as is known—having an airframe fitted with both piston and jet engines and which has been placed in production in both forms. Approximate speed of the plane which uses a British Goblin II gas-turbine engine is approximately 520 mph!





# *Airlift Pilots log 54,630 GCA\* Landings*

Since the Airlift began one year ago, GCA has been in continuous operation—24 hours a day. By mid-May 1949, even by Airlift standards, GCA's record was enormous.

Of the 54,630 GCA landings, 17 were "saves"; 4,807 were below IFR; 31,028 were IFR. Only 17,804 were VFR. In all "Operation Vittles" there was not one GCAccident, not one minute of radar failure.

Chosen by the USAF as its exclusive landing aid, GCA justifies this confidence. In one emergency, 26 Airlift C-54's were GCA landed in 26 minutes, three times the normal rate.

Military authorities say Berlin's 2½ million people could not have been fed without GCA's help. As GCA's pioneer developer and manufacturer for the USAF, Gilfillan is proud of its share in the Airlift's success.

*Gilfillan*  
LOS ANGELES

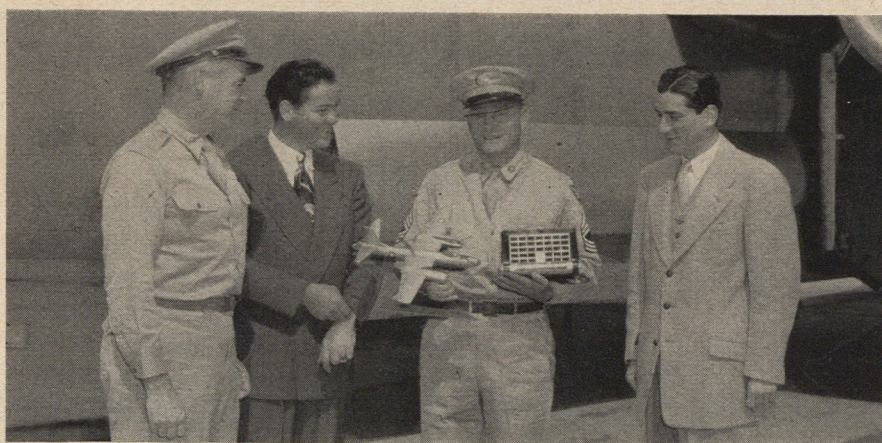


RCA International Division  
Exclusive Export Distributors  
\*Ground Controlled Approach





At Seattle the Washington finalists in the Miss America contest line up for inspection in front of Boeing Stratocruiser. The caption didn't identify the inspecting officers, but the winning contestant was "Miss Cowlitz," sixth from left.



M/Sgt. Clyde N. Parker (third from left above) accepts model plane and a table radio for submitting winning name for B-45. The name: "Tornado." Below, it's a piece of cake for each member of First Rescue Sqdn. now celebrating its third anniversary in the Canal Zone. Lt. Col. Eugene Clark, the CO, does the honors.



Ronnie Calvert, three year old victim of leukemia, talks it over with T/Sgt. Herbert Billington, of the 367th Bomb Sqdn., McDill Field, Fla. Billington brought Ronnie a plane load of water-melons from Florida to California when he heard the youth had developed an insatiable appetite for them. There were 28 melons in the bomb bay.





B29A-35-BN  
44-61504 A



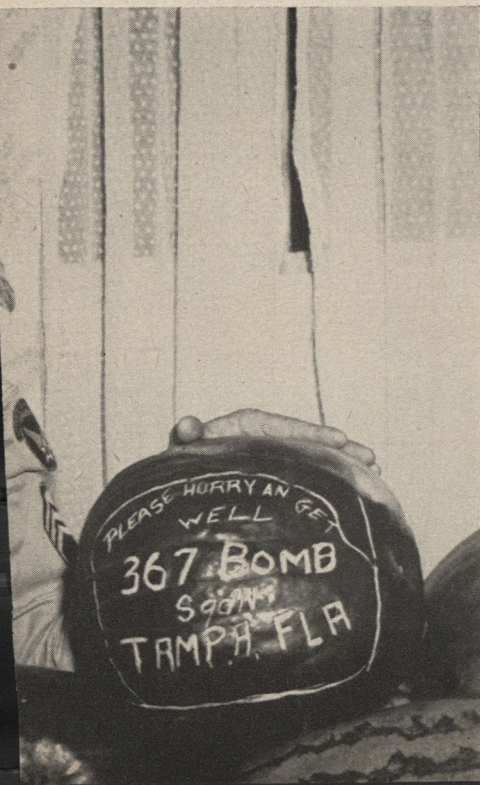
MEMORY BELLE

UNITED STATES

Mrs. Joseph Owdziej (above) christens Superfort "Memory Belle" in honor of those killed, including her son, while serving with 15th. Clarence Carn, head of 15th AF Society assists. Below, Celeste Holm and troupe of starlets now touring Europe.

# RECON SHOTS

The roving camera records highlights of the month in the world of aviation around the globe and back







## Keep the public posted, soldier!

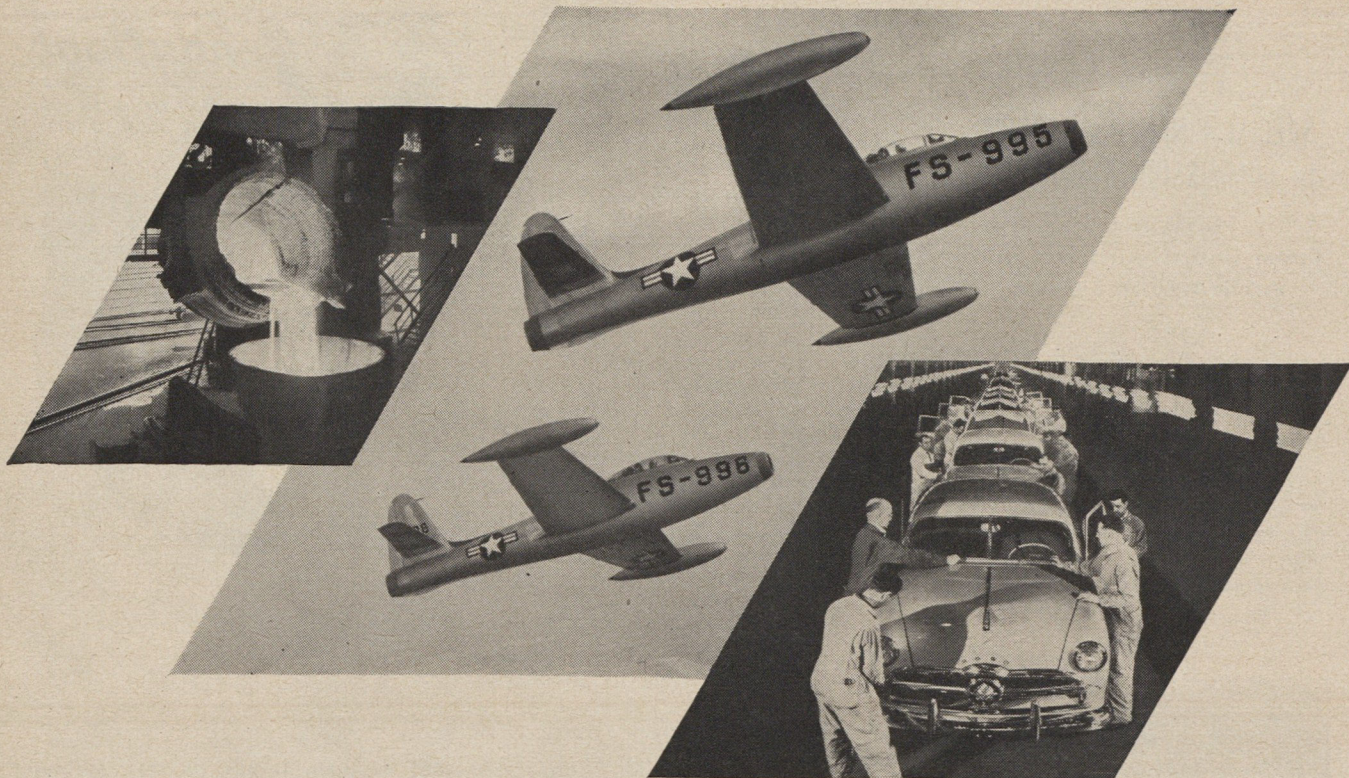
American Airlines, Inc. congratulates the Air Force Association on its magnificent job in bringing the National Air Fair to the people of Chicago and the Middle West. This, the greatest display of modern aircraft ever assembled for public inspection, will be seen at Chicago's Orchard Airport on July 3rd and 4th.

Far more important than the entertainment value of the show will be the deep impression it cannot fail to leave on thoughtful citizens.


As public spirited veterans you have performed a great public service in keeping this country informed of new developments in Air Power and keeping it ever mindful of Air Power's importance to National Defense.


**AMERICAN AIRLINES** INC.




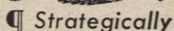


## THUNDERJETS OVER AMERICA

Detroit's production lines of automotive miracles that contribute to logistic leadership . . . men and women who enjoy their daily operation . . . with the highest standards on earth.  Raw materials in prodigious quantity for machine and mechanic alike, from the roaring hearth of Pittsburgh and the cattle pens of Chicago.

 Our great inland chain of rivers, lakes and locks . . . life-line for ore, grain, coal . . . and finished products of a hundred mid-land towns . . . to sustain our way of living . . . to

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## PLACE TO HIDE CONTINUED

Major O. G. Johnson of the AMC's Aerial Photographic Laboratory, was equipped with three standard K-24's.

A whole series of pictures, showing virtually all of Manhattan, were taken in a brief half hour's firing. Cartridges exploded like Roman Candles—one every ten seconds—until the cameramen had their desired pictures. By contrast the new equipment permits, according to Goddard, as many as 1,000 pictures to be taken on a single mission as compared to the one-picture, one mission performance of his first experiment in 1925. Likewise he says it will be possible to take the pictures with even greater clarity—because of the lack of reciprocating engine vibration—from jet airplanes flying at 500 miles per hour.

"In the future," he predicts, "equipment will be perfected that can do the job in color and from heights of several miles obtaining similar results."

The results obtained over New York were especially gratifying to the aerial photographic technicians because they had picked one of the nation's toughest targets. Other tests with the new equipment had been flown over Dayton and Detroit and other "open country" areas where idea conditions for photography prevailed. But New York City—because of its geographical location—offered many new obstacles and challenges.

(Continued on page 45)



# ReadyBoot

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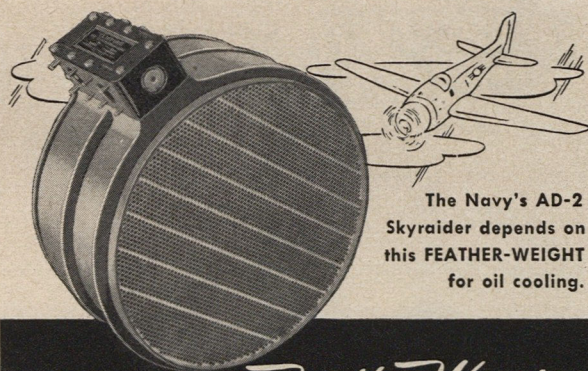
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The pictures here speak for themselves.

The equipment, especially the photo-flash cartridge is the result of several various experimental techniques beginning with the para-bomb flash in 1925. After that a small model plane loaded with flash powder and towed by the photographic airplane was tried with moderate success. (Goddard almost lost his life when the model exploded too near the tail of a B-18 bomber during one test.) The next step was the development of a powerful flash bomb, falling free and synchronized to the camera with a photoelectric cell. Then came the Edgerton flash method which literally put a series of flash bulbs—like a newspaper photographer's flash gun—in the airplane.

But all previous methods were handicapped. Primarily it was weight and too much complicated mechanisms. Until the cartridges came along, total weight of the equipment including cameras was more than 1,000 pounds. Now, it has been halved.

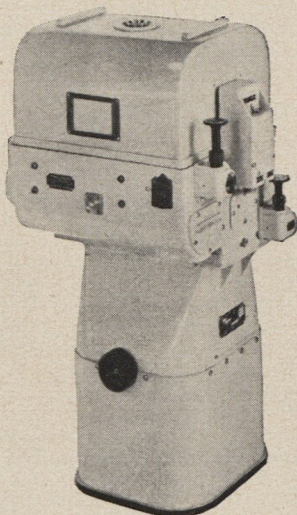
Still secret as to some of its details, the flash cartridge was developed by Army Ordnance especially for the photo specialists.

AMC technicians point out that with present equipment pictures can be taken at night in a plane flying a mile or so above the earth and processed and printed right in the airplane. The finished print can be "televised" or sent by wire-photo to ground stations and get there hours ahead of the plane.

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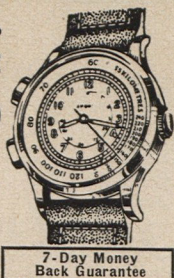
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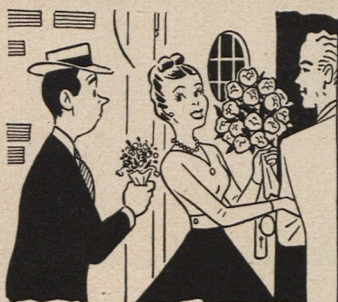


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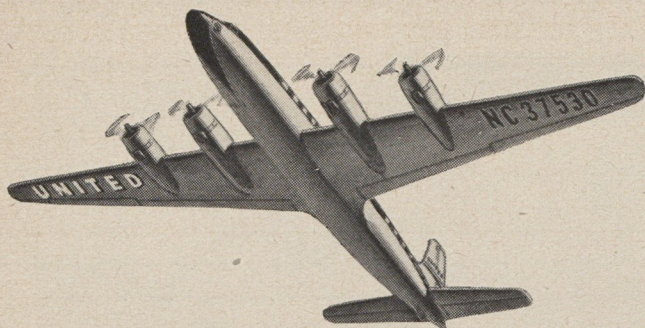
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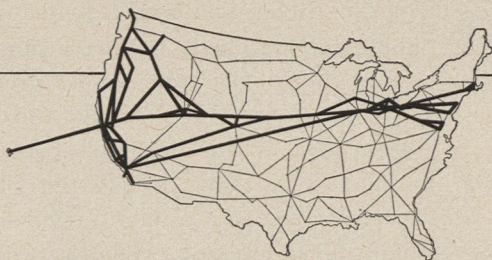
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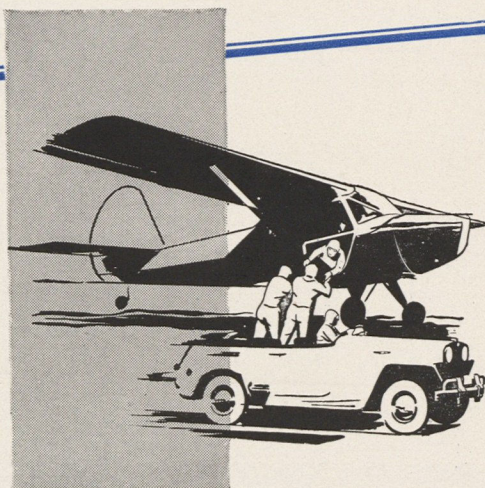


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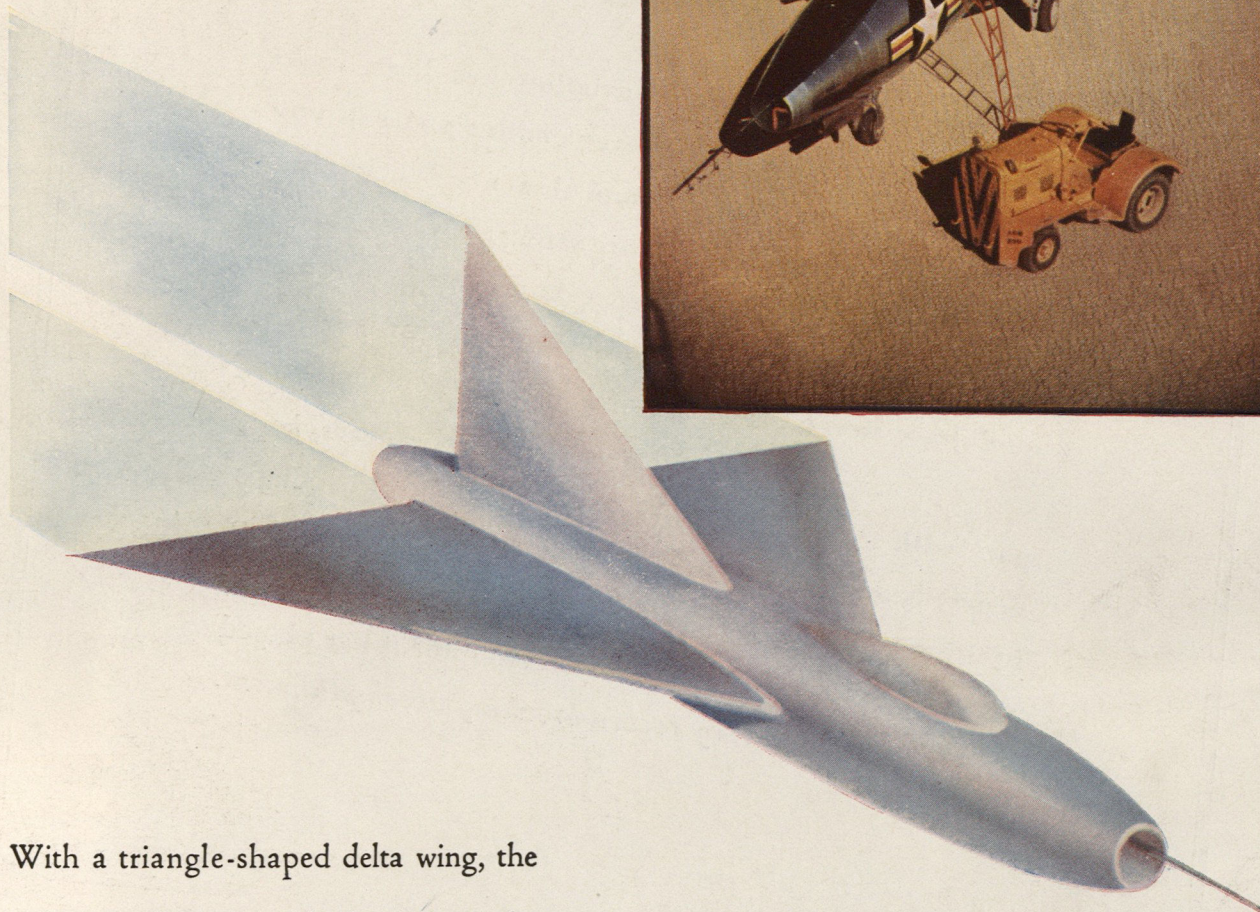
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